The Dental Digest.

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Original Contributions.

ANOTHER STEP IN PROSTHESIS.

By Cyrus A. Allen, D.D.S., Buffalo, N. Y. Read Before the Buffalo Dental Association, Feb. 14, 1899.

The writer is one who believes but slightly in "new things," and much less in the exclamations of "Eureka" so often heard from the ranks of our profession. This non-belief leads him to disfavor all claims for honors expected for the discovery of "new" pro-

cesses, of "new" methods, of revolutionizing (?) systems, etc., so frequently urged with fervor *ad nauseam*.

The "new" continually presents the old—the *very* old, regowned, repowdered and scented afresh with fad's latest perfume. Old principles, even old practices, are introduced to the elect with courtier-like elegance of language and paraded in fresh raiment before the public gaze as new finds in our little world. Only the few withhold, while the many pour out their plaudits for these new exhibits of genius, and generously crown them with the laurel wreath of distinction.

With these thoughts in view the writer would earnestly disclaim

all credit for "discovery," all praise even, for the application of old principles to new uses. He does not urge, nor does he believe that time has left it to him alone to give to the world new things and new ideas. Others have no doubt employed like practices, but the writer recalls no publication of them. If the future can demonstrate, as he firmly believes it will, that the following system of practice has merits, the profession at large will be benefited by its publication.

Out of the past ages many illustrations of dental losses and their crude substitutes have come down to us. In pomp and splendor the "what was left," after the penalty for nature's disregarded laws had been paid, was tenderly and sacredly laid at rest. From these 3,000

year old interments come many of to-day's new things. The methods which the exigencies of the times demanded were the same as those of to-day—the principles of *substitution*. To be sure many of these details are lost after this great lapse of time, but fundamentally they worked as we now work. 'Twas only a question of substitution and their supports with them in the old day, as it is now with us. The wonder is, that we so long remained unappreciative of and unwedded to the genius of our ancient tutors. But perhaps our triumphant progress from obscurity into the broad light of an honored profession within a period of 100 years crowns us with sufficient glory.

It not infrequently occurs that a case presents where two or three strong teeth may appear in the arch. Their removal under these circumstances seems always a crime to the conscientious dentist, while their retention with a substituted partial involves annoyances

with which we are all more or less familiar. Most prominent among these may be mentioned the complete covering of the arch, thereby destroying much of the naturalness of speech, taste and general comfort, to say nothing of the irritability developing in the soft tissues from constant contact with a non-conducting medium. The absorption of both membrane and process at the necks of the remaining teeth always produces that much dreaded and extreme sensitiveness of exposed cemental tissue. Why not preserve to long usefulness and comfort these few teeth by a practice so simple that it will readily come within the reach of all?

It is a well known fact that three, four or five teeth have sup-

ported a complete denture by the bridge system in comfort for a great number of years. The longest test for this system with the writer dates from October, 1897; the shortest but a few months. Our first case, extending over a period of about twenty-three months, has shown most gratifying behavior, to the end that it has established for the practice a secure place in our confidence and affection. The period of test for more recent cases is too brief to permit of anything further than a report of progress. However, these reports when made a few days since were full of promise.

The system to be described combines the principles of both bridge and ordinary plate work. Its range of utility may be limited only to the skill of the operator. Should this skill chance to be of the higher order, too infrequently encouraged to its fullest development, and engage itself in a thorough analysis of the following, it will

surely agree with us that its practice will give prompt assurance of these qualities: 1. Firmness. 2. Strength. 3. Cleanliness. 4. Comfort. 5. Economy. 6. Usefulness. When to these six alluring claims are added those of mouthhealth and simplicity of economical repair, sound argument proven by clinical experience will be required to brush them aside.

The subject exemplifying this practice was presented in September, 1897, and is happily typical, as it embraces two important applications so frequently employed in this system. It expresses the "shell" crown, and also the "open face" crown. Modifications of either or both of these may appear whenever suggested by the case in hand. For anterior work the Richmond principle may be employed, but with its use skill of the highest order should be manifest.

As shown in the illustration, the right cuspid and left second bicuspid alone remained in the arch. All losses had been made good (?) some time previous with an ill-fitting, full-arch vulcanite plate. This miserable effort at substitution had developed a condition of extreme sensitiveness extending disto-lingually well over both of the remaining teeth. Recourse to a new plate accurately fitted would effect much, but even this could not give relief to these two teeth, the chief offenders against comfort.

To remove them seemed almost a crime, as they stood firm and unyielding in their sockets, almost begging recognition of their genuine worth. The remedy applied was the reduction of the bicuspid to a "stove-pipe" shape, that it might receive a platinum cap, gauge 30, with long bearings and much firmness. Cataphoric anesthesia furnished immunity from all suggestion of pain during this operation, as also when the cap was finally cemented into its permanent place. The cuspid was treated in the same general manner, except that an "open-face" was substituted for the "shell" crown of the bicuspid. Anesthesia was not here so imperative as with the bicuspid, but to some extent its merciful agencies were employed. With caps in position a bite was secured, and this was supplemented by a perfect plaster impression. The removed impression presented but one cap in position, the other having declined to yield to plaster's embrace. The truant was quickly "rounded up" and carefully restored to its proper relations.

With the model poured and the bite well defined upon an articu-

lator, the outer or "removable caps" were nicely fitted to the artificial tooth coverings. The bicuspid was of 22 k. gold, gauge 30; the cuspid of the same, slightly reinforced at its weak points, notably on the labial surface. To these were soldered "lugs." For the purpose of rigidity in the finished piece a "strengthener" of platinoid was carefully shaped to describe the entire arch from heel to heel. When in the position desired this was soft-soldered to the crown lugs and all the parts, now united in one piece, were placed upon the model.

Then came selections and their arrangements, with a careful regard for utility and esthetic effects. The case at this point was carefully waxed up, packed and vulcanized on low temperature time, and finished as usual.

Upon its adjustment in the mouth there at once came the conviction that a conservative practice of the above principles must not only benefit mankind, but would also add another jewel to the crown of dental progress.

REMOVING LABORATORY STAINS.

By F. M. Fulkerson, D.D.S., Sedalia, Mo.

I have tried a great many methods for removing stains, dirt and grit from the hands, some of them being quite expensive, but I think the following is the most effective as well as the cheapest: Dry the hands thoroughly and rub them well with oil, when you will find that the oil gets into all the fissures of the skin and loosens the dirt. Then wash the hands twice with some good soap, which will remove both the oil and dirt and leave the hands soft and clean. This method will also prevent the hands from chapping, as they often do in winter, or when washed frequently,

INTERNATIONAL DENTAL TREATY.

By W. E. Driscoll, D.D.S., Manatee, Fla.

In looking over some old copies of the Digest I have noticed especially an editorial in the August, 1898, issue entitled "As a Profession, What Will be Our Future Relations with Other Countries," which seems to introduce a matter of great importance to the profession in America. If all the dental colleges now in existence continue to graduate as many new dentists as in recent years,

some outlet must be found or many will be brought face to face with the fact that their professional knowledge is deficient in bread-winning.

Our new possessions will attract additional attention to foreign fields for practice, but they afford scant room for the excess above home demands If foreign nations are ruling out our product of dental practitioners, why may we not remedy the injustice by treaty, just as all our other foreign interests are protected. I see no reason why the terms upon which American dentists may enter upon the practice of their profession in foreign lands may not be defined by treaty through our national government. Such action would go far to establish our own home standard of qualifications and would also give our profession the status and recognition so many have longed for in vain.

The movement to have dentists assigned to duty in the army and navy will make room for only a small number as compared with those who may go to foreign countries under proper treaty stipulations. Such arrangements would also aid in preventing the quacks from imposing upon the people abroad under the enviable reputation which the American dentist enjoys. This also seems necessary to prevent men who are not Americans from claiming the name, as well as to shut out our native-born charlatans.

Besides the self-interest to each American dentist involved in this matter, a great good will be done the foreign people. The specimens of dentistry seen in the mouths of middle-class people coming from Europe show that their dentists are not so competent as our mediocre ones, and therefore deserve to be crowded out unless they improve their methods of practice. If no treaty defines the question we are sure to be assailed with a never-ending tale of injustice to the American dentist abroad, from which we should be spared.

DECADENCE OF THE DENTAL FEE.

By Arthur G. Smith, D.M.D., Peoria, Ill. Read Before the First District Dental Society of Illinois, at Monmouth, Sept. 27–28, 1898.

I believe it was Grover Cleveland who made the remark that "We are confronted by a condition and not a theory," and in the subject under consideration I am sure that we will all agree with his statement. While there are perhaps some exceptions, it is undeniably the general rule that for the last ten years, and particularly for

the last five, the trend of prices for dental services has been steadily downward. One of the first explanations which comes to mind is that everything else has gone down and our fees have simply shared in a general reduction. The fact that a dollar buys more now than it did five or ten years ago is one of the reasons which we continually give to make ourselves more content with the fewer number which we are receiving for services.

That there is a modicum of truth in this no one would be foolish enough to deny, but it by no means touches the main cause, as we can readily see. What has caused the drop in prices of general merchandise in the past three years? In ninety-nine cases out of a hundred the answer can be given in two words—improved machinery, with its consequent increase of production and lessening of first cost. Will this reason also explain why our fees have been reduced? Most assuredly no. With the exception of trifling reductions in the price of some supplies, all our material now costs as much as ever; rents are certainly no lower, and the filling which ten years ago required an hour for insertion refuses, with all the aids which we can now command, to be properly placed in any greatly lessened amount of time.

There are also other facts which must be taken into account. The cost of acquiring a dental education is greater now than ever before; and the number of instruments and fixtures which are counted almost indispensable in the modern office represents a cash outlay for equipment far in excess of that required even so far back as I can remember. Take the matter of fountain spittoons for example. Only a few years ago there was not one in Peoria, and now there are at least a dozen. During the last two years we have nearly all invested in cataphoric outfits. Have these machines lessened or increased the cost of our finished product? These are a few of the things which plainly show that lessened cost of production cannot exactly be designated as the main cause which has forced the general scale of prices down.

About ten years ago the fever for crown and bridge work set in and was soon at its height. The public mind became suddenly convinced that here at last was a panacea for all the ills that teeth are heir to. This idea was largely due to the representations and promises of the dentists who were promoting this branch of the work with great vigor, and who were even more anxious to believe their

own fairy-like statements than were their patients. Naturally enough, for when a man gets $15 or $20 for every tooth fixed in this way, as nearly every one did when the work was new, there is unquestionably a margin of profit in the transaction which might well cause even a plumber to reflect. This is just what a great many plumbers, to say nothing of school-teachers, locksmiths, barbers, and even doctors did—they reflected, and after thinking the matter over decided to forsake their former vocations and follow ours, which they evidently supposed to be an easier and more lucrative employment.

There were many dental colleges ready, and more were soon started, to accommodate these aspirants, and so it has come about that in the last five years there has been a tremendous increase in the percentage of dentists in every community. We all know in a general way that this is true, but I never realized to what an extent it had progressed until I looked up the matter a few days ago in my own city, with the following result: In 1888 there were fourteen practicing dentists in Peoria, and in 1893 there were sixteen, but now there are no less than thirty-two. I do not think it is an exaggeration to say that the number of men in our profession has perhaps more than doubled in the last five years. The increase of population has not been at all proportionate, and the kindred profession of medicine has made a gain of only from 10 to 15 per cent during the same period. Need we look further for the cause of lessened prices? I think not.

When a young man starts practice in a town he is forced to offer some inducement to people to patronize him, and what is more natural than that he should entice them by means of a discount or an inside price; or, what is still worse, that he should announce to the public in heavy type that his prices are the very lowest and his work the very best to be had. In spite of the fact that our numbers have so largely increased and in spite of the keener competition which must of necessity accompany such a condition, I am sure that much good and little harm would have resulted had it not been for the man who claims every virtue in his advertisement and performs but wreck and ruin in his work. The fact that he is not in our class professionally, or that your patients and mine seldom go to him, does not help the situation. His advertisements constantly injure us all by educating the public mind through sheer force of

contact and repetition down to a scale of prices to which no man can adhere, do good work and make a living, all at the same time.

It is almost impossible nowadays to pick up a daily paper or even to go on the street without seeing the lying advertisements of some dental parlor. When our patients come to us they do so because they have learned to shun the aforesaid parlors, and because they believe in our professional ability and reputable methods of practice. In the majority of cases patients are in a measure prepared to pay a higher scale of prices than those which they have seen advertised. But if perchance molars and bicuspids present extensive approximal decay, calling for large contour gold fillings at from $5 to $10 per contour, the desire to support the reputable men receives a severe check, and instinctively they remember the seductive "$3-Crown" advertisement. A thought then perhaps suggests itself that if an entire tooth can be covered with gold for $3, why should it cost two or three times that amount to fill the cavity in it with the same material, and the intimation is more or less directly made that our price is too high.

Such being the condition of the patients' minds, what courses are open to us. Very often by putting the facts in the case and the differences between the two operations clearly before our clients, we are able to show that ours is the best thing to be done and worth every cent which we propose charging for it. We may fail to carry conviction and thus allow the patient to depart in search of some other dentist whose prices are more in accordance with the newspaper list; or worst of all we may weaken, and when the prospect of losing a patient outright stares us squarely in the face come down at the last moment from our previously stated figure, with the request that as this is a special price the patient will say nothing about it. This is the worst method because it directly tends to lower the standard of work of every man who employs it. If we were honest we named as nearly as we could estimate it a fair price in the first instance, and to accept less means to be underpaid for the work. No man puts forth his best efforts when he feels that it is not for adequate compensation.

There are two things in connection with dentistry which tend to encourage the quack and make his way easy and profitable, while they have the opposite effect on the conscientious practitioner. They are the facts that slipshod and superficial work inflicts a minimum

of pain on the patient, and that our work is slow to find us out. It takes years for patients to realize that the fillings made by a certain man are masterpieces; and it also takes months or years for it to dawn upon them that they have been in the hands of an incompetent. I believe that this state of affairs does not prevail to a similar extent in any other calling.

So much for the causes; now let us look at the condition itself and the remedies for it. There is a widespread demand at the present time for low-priced dentistry and this must be met by some one. It is all very well for us to talk here in our meetings about the highest professional service in our power, money being no object in determining an operation, etc., but in our workaday life the question of how little we can perform a given operation for is frequently one not lightly disposed of. Indeed, from the humanitarian standpoint of the greatest good to the greatest number, the solving of this question of low-priced dentistry is one that demands our most earnest attention. The most lamentable feature is that low-priced dentistry is synonymous with cheap and shoddy work. There is no denying the fact that even with people of intelligence and refinement it often becomes necessary to have work done for little money or not at all. Therefore when a patient whose pocket nerve is very sensitive and nearly exposed comes to our office, let us serve him with well-made amalgam, cement or gutta-percha fillings if necessary, rather than force him to a parlor where he will get showy but poor operations. There are always some people in a community who wish only the best and who are willing to pay for it, but in striving to secure their patronage let us not neglect the less ambitious operations which we ought in justice to perform for those who cannot afford to pay large fees.

DOCTORATE ADDRESS.

By C. P. Pruyn, D.D.S., Chicago. Delivered Before the Graduating Class of the Illinois School of Dentistry, Chicago, April 12, 1899.

The doctorate address which time-honored custom has made a fixed feature in exercises of this kind is the last anxious, loving words of cheer and warning given by the Alma Mater to her children, as they step beyond her protecting threshold. He whose high task it is to utter these words has a responsibility laid upon him which he reads in the light of his own experience and his own aspirations.

As I look on this group of men and women who have just rounded one period of their life's history, and are standing with impatient feet at the opening of another era, I am conscious of an earnest inward prayer that to me it might be given to say the word that may help to strengthen and to point the way when they face the hard actualities which must come to all who lead a life of growth and endeavor.

When I gaze into your faces, filled with the happiness which comes from a successful endeavor of the past few months and the hopeful possibilities of your future, I realize how diversified will be the attention given to any last words spoken at this moment. Each ones ear is attuned to my voice according to his temperament. There are some who will "Mark, learn and inwardly digest," and will carry to their last days the echo of this last utterance of the mother school. Others will receive the blessing, and the warning, and start their new life with a high enthusiasm to square it always with the sentiment voiced to-day. But soon, alas! the clamor of the world and the buffetings of life will dull their sense and they will forget. Again, there are others who will not really hear with the finer inner ear of the soul, until perhaps some sharp experiences of life set vibrating old memories, and words spoken on this occasion will sound again like the chimes of a sunken bell, which the waves have buried but not made dumb.

And now what is it that we would say to these fine sons and daughters of ours before they start on the untried journey? First, begin your new life immediately on some systematic plan. Do not drift. Know what you want and start right for it. Now that text books are put aside and class work is yours no more, do not cease to be a student. Commence at once some systematic line of study. There is no royal road to excellence and perfection in the professions. An honored place in them must be attained by strenuous effort, without which no good thing is gained.

The average man has a poor chance in a field so crowded as is that of dentistry. Statistics show that between 1886 and 1897 there have been over 12,000 young men graduated from the 52 or more dental colleges in operation. In this ever-increasing army you must allow that the fellow who stands still has but little show. He must either press forward or he will very soon find himself pushed to the rear and trampled under feet. That room at the top, of which

the philosopher speaks, is always there, but there are so many brave, bright, strong fellows pushing up to fill it that one who wishes to reach there must plan his way carefully and keep his gaze steadily fixed, so that no upward stroke shall be lost and no serious errors retard his progress. "Hitch your wagon to a star," as Emerson says. Don't be satisfied with mediocrity. In the hard work of your daily life there will come many discouragements. Your best intentions and your noblest acts will be often misconstrued and you will be blamed where you will deserve praise. This will be hard to bear; but there is yet a higher task of man's strength, and that is where he receives praise where he should have been blamed. Set your own standards and hold yourself rigidly to them in spite of any voices from without.

Never mind how far you may travel from college days, never lose the faculty of learning from others. Be teachable always, remembering that the first condition is to be as a little child. In this spirit join the dental societies where you may keep in touch with the progress of fellow workers, and where you must give and receive strength and development. The organization of dental societies in the United States have, to my mind, revolutionized the condition of the general profession. The broad-minded man of to-day can hardly realize the condition of some fifty years ago. Then every man was isolated—prejudices and small jealousies seemed to array each against his brother. As one of our leading dentists recently wrote: "In those days lips were sealed, lest they might disclose an important method of practice. Nowhere throughout this progressive land in dentistry was there any light upon the medieval darkness. It however proved to be the period before the dawn." It is to a man whom we seldom hear named that we owe the change from those dark conditions, and I will give you his name to take with you and to remember. Horace H. Hayden was the man who in season and out labored for the organization of the profession into harmonious working bodies which have raised the profession to a level and dignity which could never have been attained by individuals working in selfish isolation. You are the happy inheritors of the splendid fruits of all this past struggle and great will be your blame if you do not realize to its utmost your present-day opportunity to unite with your fellows.

There are things you owe to yourself—they are among a dentist's

duty to himself—chief among which I must place that important one, the care of the body. A healthy mind in a healthy body must be the condition of a successful dentist. He of all men cannot afford to dissipate his strength of nerve and muscle by irregular living. The clear brain to invent and direct and the steady hand to execute are the *sine qua non* of the profession, and he who is unwilling to turn his back upon the flesh-pots of Egypt, who is unwilling to make high thinking and pure living his life's method, had better stop right here and turn his effort in another direction.

These are some, let us say the most important, of the duties of a dentist to himself. It is the first of a trio which you must face out in the world. The other two are a dentist's duty to his profession and a dentist's duty to society.

What then are some of the duties of a dentist to his profession? First and most important that he should love it as a thing most precious; that he should revere it as a thing most sacred; and that he should believe in it as a thing whose potentialities for future growth and development are without limit. It should be precious to him, because by its aid he has the God-given privilege of alleviating human suffering. Humanity with its burden of "ills that flesh is heir to" now looks to the dentist as well as to the physician to soothe its pains and cure its deformities. In fact, dentistry has not only reached an equality with general medicine, but in some respects has led the older sister into ways of which she had not thought before.

He reveres it because the nearer he approaches its mysteries the more he will find that only a pure heart and a clean hand can be admitted into the inner sanctuary. He will realize that the slightest stain within its gates besmirches all who stand therein, and he will not only respect it through his own cleanliness, but will see that all darkness and narrowness and things that soil be kept from it.

He must believe in its future because he knows of its past. Less than fifty years ago the would-be dentist had but to pay a certain sum to work one year in a dentist's office, and while there about all he did was to pull teeth. What the present day exacts in the way of preparation you well know. A good dentist combines the excellence of several other professions. He must be something of a chemist, of a physician, of a mechanic and of a psychologist. The tooth pulling of the past is almost displaced by the ability to treat

diseased conditions, and by the bridge work and fillings of to-day. Hurtful microbes which destroyed the molars of our grandfathers are hunted in their hiding-places and destroyed. Nay, we even know the exact amount of pressure that is used in mastication, and we can tell to a fraction whether our beef, our oatmeal or our bread will take the greatest mechanical force of our much-used jaws. Work on the scientific side of dentistry has been given a great impetus during the last quarter of a century. Although there is no nationality in science, I would call attention to the fact that though our English and other European brothers have done much to advance our knowledge and to solve difficult problems, it is the American dentist who has accomplished most of this work. I think we can be justly proud of the fact that in our young country there is a growing body of unselfish men which can hold its own with similar bodies in countries of so-called older civilization. In the face of this magnificent growth in the past few years is it not reasonable to predict unlimited possibilities for development in the future?

There are some duties you owe to the general profession. Your duties to individuals each will settle according to temperament and character. Let me urge upon you the need of professional loyalty and sympathy to all who are treading worthily the same path with you. Put small envy and the carping spirit far from you. Cultivate a healthy admiration for the worthy achievements of others. In the dental world, as in the larger world, there cannot be perfect unanimity of opinions, so while you hold your own bravely, respect a differing opinion when it is held with like honesty and sincerity. Out of the differences of many truth finally comes, but it must be a difference in harmony and not in the bitterness of strife.

As you are generous in admiration of the successful, be also kind and helpful in your consideration of the weaker travelers. How many good men are there—pure, faithful, hard-working fellows, who seem always to fail when they come into contact with the material struggle in life. When you meet them do not forget the helping hand and the cheering word. Some of these same men, though they may fail according to the dime and dollar standard, often are the light-bearers on the thoughtful and student side of the profession. To-day we break college ties, but let there come no severance of the warm friendships which have grown under the fostering shadow of the Alma Mater. Do not let life's battles harden your hearts. It

need not unless you will it, and if you will it you have chosen the losing part.

And now, what does the dentist owe to society? First, that he be more than a dentist—an upright and responsible citizen. Professional men too often have the idea that it is unprofessional to attend to those things which do not lie within their special line of work. Bright, strong men are more and more putting aside this selfish thought however, and realizing that the responsibility of conducting the affairs of this world rests with equal weight in professions and out. It would be well for you to start with this realization and to make up your minds that the world shall be a little better because you have lived. Give a thought and take active interest in the affairs of your municipality. Bring your knowledge of physics to bear upon the public sanitation. Let your physiology and your science make you wise to improve your schools and to add to your public libraries and churches.

It is within the power of each of you to create his own environment. Let it be such, then, that the world may have one more aid to that higher and better plane to which we all aspire. Do not let the dollar-mark be the end and aim of all your efforts. In a material world consideration of the material is a necessity, but it should always be considered not as the end, but as the means toward an end which in its nature is mental and spiritual. The character of your lives after to-day will be determined by the standard of success which each carries in his mind. To build up a paying practice is the hope, I dare say, which is common to all, yet he who goes no further in his aspirations is missing the highest and best. The social structure of which you are a part demands more of you than that. It demands that you should make yourself a complete man, and that you shall give of your best for the benefit of the whole. In this completeness we must not stop short of the highest culture, and to that end let me beg of you to do general reading. The dentist who confines his reading to dental journals and the newspapers is a very proper man 'tis true, but he adds little to the general culture of the world. Make it a point to read at least an hour and a half each day. Give a half hour to classics, which enrich the mind and give it tone; another half hour to modern literature, which keeps you in touch with the progress of general thought, and the other half hour to the literature of your chosen profession. If you

make this a rule of your life, you cannot conceive to-day how much you will have grown and how much you will be able to accomplish in a few years. Society then will owe you a debt which it will not be slow to pay.

And now I have finished. I have told you what to my mind are some of your duties to yourselves as dentists—what are some of your duties to the profession into which you are so cordially welcomed to-day, and what are some of your duties to that great world in which you now take your places as workers. May some at least of what I have said find favor in your sight and find a realization in your lives. I say it with the warmest wishes of a fellow craftsman who has preceded you by many years in your chosen field, and I most heartily wish you one and all prosperity in noble doings and success along those lines which are highest and best.

THE EARTH ODOR.—The characteristic odor of overturned earth, according to Clarke Nuttall (*Knowledge; Gazzetta degli aspedali e delle clinache*, May 18), is due to a microorganism, the *Cladothrix odorifera*, which he has isolated and found to produce a substance with this characteristic earth odor during its culture.

ORAL BACTERIA.—Mr. Kenneth W. Goadby, L.D.S., (1) has found and isolated from the mouth an organism belonging to a species not heretofore described as inhabiting the buccal cavity, that is, a cladothrix, which moreover is fairly constant in healthy as well as unhealthy conditions of the mouth; it has well marked characters and is extremely pleomorphic. It may be cultivated upon the ordinary laboratory media. He suggests the name cladothrix buccalis. (2) He has worked out still further a considerable number of microorganisms which are found fairly constantly in the mouth, and which have a distinct relation to dental caries. Two of these organisms have been found pathogenic for guinea pigs (Spirillum sputigenum, B. maximus buccalis). (3) He has also isolated from dental caries, after observing the usual precautions, two organisms that are of constant occurrence; (*a*) Streptococcus brevis of Lingelsheim; (*b*) B. necrodentalis (Goadby), an organism with cultural and morphological characters which are different from other known organisms. (4) He has also isolated from the mouth certain organisms which are liquefiers of blood serum, and which are able to liquefy entirely decalcified tooth cartilage. (5) He has also found that in the process of dental decay the deep organisms are for the most part anaerobic, but facultative aerobic, and also for the most part acid-producers; the surface organisms are often liquefiers (aerobic), rarely acid-producers, from which it follows that the process of dental caries is originated by acid-forming organisms which are capable of anaerobic existence, and that the solution of the lime salt allows the liquefying organisms to complete the destruction of the tooth.—*Brit. Jour. Dent. Sc.*

Digests.

IS A GERMLESS WORLD DESIRABLE? The condition of things in a world destitute of all microbes is pictured by Dr. Henry S. Gabbett in an article on "Beneficent Germs," contributed to the *Nineteenth Century*, June. Dr. Gabbett reminds us that Mr H. G. Wells in his "War of the Worlds" has described the planet Mars as a germ-free world. What kind of a world would such a one be? Says the author: "Suppose that air, water, soil, animals and plants have been thoroughly *sterilized* in the bacteriological sense; suppose that by the universal application of an ideally perfect germicide every microbe has been killed, while higher living things remain unharmed; and suppose that no new agents have been created to perform the functions of the extinct families. What is the result?

"First, we observe with gratitude that we have done with a large number of diseases, acute and chronic, affecting beasts and men. Rinderpest and glanders have disappeared; anthrax no longer slays its thousands among sheep and cattle; tuberculosis in all its forms is unknown. The plague has vanished, never to reappear in east or west. Leprosy, the mysterious scourge of many ages and many lands, at last dies out. In all probability we may expunge scarlatina, measles, and all the common infectious fevers from our text-books; certainly no one need fear cholera, typhoid, diphtheria, or erysipelas. . . . In this changed world wounds and injuries are robbed of half their terrors, and surgeons take no precautions against septic trouble. Food-poisoning by ptomains is never heard of. Sanitation becomes easy; evil odors are almost banished from our streets. Various minor sources of annoyance have been abolished; milk does not turn sour, nor butter rancid; eggs keep always fresh; in the hottest summer our meat never becomes 'high.' It would almost seem that everybody should be satisfied, except the bacteriologist, whose occupation is gone.

"But very soon we begin to miss some things in our germless world. There is no beer, wine or brandy, all the yeast plants having perished by the germicide. No doubt chemists will sooner or later devise a substitute, but natural fermentation is at an end. For the same reason artificial methods of aeration must be universally employed in making bread: the leaven that has been used for so

many ages has lost its potency. Our cheeses will not 'ripen,' owing to the absence of certain bacilla that used to effect the change; and there is a distinct falling off in the flavor of our best butter. The manufacture of vinegar is stopped, because there is no longer a *bacillus aceticus* to work upon weak alcoholic solutions. Along with these changes in our diet we seem to notice some impairment of our digestive powers, which may be explained by the absence of those innumerable microorganisms which used to inhabit our alimentary canals and which assuredly had some influence upon the processes therein. Certainly the health of our herbivorous animals suffers on this account; they lose the power of digesting the cellulose which enters so largely into their food."

This, however, would not be the worst of it, for to the microbes of the soil we owe the nitrification and other chemical processes that fertilize it and that enable plants to obtain their nutriment from it. Says Dr. Gabbett: "If the soil were rendered 'sterile' in the bacteriological sense—that is, if all the lower fungi in it were destroyed—it would soon be sterile in another sense also; our crops would perish and agriculture would come utterly to an end. Neither grass nor herb yielding seed, nor fruit-tree yielding fruit after his kind, could survive the deprivation of their natural nourishment; and as animal life is dependent upon plant life, the fatal consequences would not be confined to the vegetable kingdom.

"But, indeed, when we consider the matter from another point of view, it becomes still more evident that the activity of these lowly forms is a condition essential to the continuance of higher life on the earth. For nothing is more certain than the fact that the processes by which organic bodies, animal and vegetable, are converted after death into simpler combinations or into their ultimate elements—the processes known to us as putrefaction and decay—are absolutely dependent on microscopic organisms, especially bacteria. But if such processes did not take place, whence would be derived the materials for the construction of successive generations of animals and plants? The amount of carbon, hydrogen, nitrogen, oxygen, etc., available for the composition of living bodies is not an unlimited quantity, but is constantly utilized over and over again; there are necessary economies in the working of the laboratories of nature. At present all living things die and return to the earth from which they are derived; and their substances are again used to construct

the substances of new living things. A part is at once assimilated by 'necrophagous' creatures, the scavengers of the soil; but the important economy consists in the slow decompositions set up by bacteria, resolving dead organic matter into elements available for fresh life. If these decompositions were to cease, if animals and plants were to remain incorruptible after death, how can we escape the conclusion that sooner or later the supply of such available elements must be exhausted, and life itself must come to an end?"

Dr. Gabbett's question answers itself. In his article, although the items of information it contains are familiar to most of us, he has marshaled them so skillfully as to present the average utility of the microbe in a most striking manner, and few of his readers would vote to have this world of ours sterilized, even to gain immunity from leprosy and small-pox.—*Lit. Digest.*

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SOME POINTS IN THE SYMPTOMATOLOGY, PATHOLOGY AND TREATMENT OF DISEASES OF THE SINUSES ADJACENT AND SECONDARY TO THE ORBIT. By Charles Stedman Bull, A.M., M.D., New York. An address delivered before the combined sections of ophthalmology and otology and laryngology of the American Medical Association, June 7, 1899. The subject of this paper may be said briefly to be the "Orbital Symptoms and the Treatment of Sinus Disease." The location and extent of sinus disease adjacent to the orbit and involving it secondarily frequently decide not only the question of operative interference and the nature and extent of the operation itself, but also the point whether any operation is justifiable.

The frontal sinus, the ethmoid cells, the sphenoidal sinus, and the maxillary antrum are often the seat of disease which subsequently extends to the orbit. It is a well-known fact that tumors of the bones of the skull, or of the sinuses contained within these bones, may extend in every direction from one sinus or labyrinth to another, and often exist for a long time and reach a large size before appearing in the orbit. The growth of these tumors is usually slow and insidious, though occasionally very rapid. Extensive disintegration of the ethmoid, sphenoid, and superior maxillary bones, from tumors starting in their respective sinuses, may have already occurred before the presence of such a growth is manifested in the orbit by the usual signs of displacement or protrusion of the eyeball,

pain on pressure along the orbital walls or directly backward, and the visible or tangible presence of the growth itself within the orbit.

The Frontal Sinus.—With exception of the true osteoma, the frontal sinus is rarely the seat of tumors primarily. The most frequent diseases met with here are of an inflammatory character, viz., mucocele and empyema, the latter being the more common of the two. Both of these diseases may be acute or chronic, the latter type forming the great majority of the cases. The symptoms are practically the same in both, as a chronic mucocele usually becomes an empyema.

Abscess of the frontal sinus is usually an affection of adult life, and does not occur in childhood, as the sinuses are not developed at this period of life. It is met with oftener among men than among women, probably because the sinuses are more developed in men than in women, the infundibulum is wider and communicates more directly with the external air through the nasal fossæ, and hence is more exposed to the entrance of infectious agents. The left frontal sinus is more frequently attacked than the right, but the reason for this is unknown. The suppurative process may begin in one sinus, perforate the bony septum between the two sinuses, and involve the other sinus secondarily.

Symptoms: In chronic empyema there may or may not be supra-orbital pain, which is sometimes intense. There are, however, many cases in which there is never any pain during the development of the abscess. In the acute form of the disease there is always severe pain over the eyebrow. If the process is confined to the frontal sinus there is usually no other symptom until late in the disease. If there is sensitiveness on pressure over the frontal boss, swelling along the lower surface of the supra-orbital margin and inner wall of the orbit, and displacement of the eyeball downward and outward, it is probable that the disease has extended to the ethmoid cells. If there are coryza, ozena, and a purulent discharge from the nostril, the nasal meatus has become involved and the diagnosis is certain. Distention of the frontal sinus can generally be easily recognized by the site of the swelling. It is higher up and farther back than the site of the lachrymal sac, and has hard, resisting walls. Occasionally a spontaneous opening occurs by absorption of the bony walls, and the symptoms are then those of a cyst. The orbital symptoms usually advance slowly, though occa-

sionally we meet with a very rapid progress. But there are cases in which a sort of intermittence in these symptoms appears. If the swelling of the mucous lining closes the fronto-nasal canal temporarily, a violent supra-orbital pain will be suddenly produced by the accumulation of fluid within the sinus. Sometimes violent neuralgic attacks occur, usually at the same hour in the morning. These attacks are characterized by continuous pain with severe exacerbations, radiating around the orbit and within the zone of distribution of the ophthalmic branch of the trifacial. They are accompanied by injection of the conjunctiva, lachrymation and photophobia. After several hours the attack subsides. These patients have usually had "grippe" with rhinitis and profuse secretion. At other times I have seen the attack accompanied at its height by paresis of accommodation.

Empyema of the frontal sinus is very frequently preceded or followed by suppuration of the maxillary antrum. The pus from above may flow into the middle nasal meatus, into which opens the "ostium maxillare," and there set up a similar suppurative inflammation, and the flow of pus from the antrum with the attendant symptoms may often be the first signs of disease of the frontal sinus. In rare cases, however, it would seem as if the disease began in the antrum and extended upward to the frontal sinus. These cases are generally due to an attack of "grippe."

Etiology: The etiology of suppuration of the frontal sinus is somewhat obscure. The predisposing causes are syphilis, tuberculosis, erysipelas, typhoid fever, scarlatina, influenza, inflammatory lesions and polypi of the mucous membrane of the nasal fossæ, and wounds of the superior orbital margin. Both syphilis and tuberculosis may produce an osteo-periostitis of the frontal bone, followed by extensive caries and necrosis and profuse suppuration, and the frontal sinus may be invaded by the pus from without. In erysipelas the disease process extends through the mucous membrane of the nasal fossæ to the infundibulum, and thence to the frontal sinus. But in order that suppuration should occur in a frontal sinus, there must be an entrance and proliferation of pyogenic microbes in the sinus. The latter may penetrate directly into the sinus through the nasal fossæ, with or without infection of these fossæ, either by way of the infundibulum or by the lymphatics. The mucous membrane of the sinus swells and becomes thicker, and thus the calibre of the

infundibulum is narrowed and eventually obliterated, and then the pus collects in the sinus and gives rise to the usual symptoms. When a mucocele becomes an abscess, there must have been present a second element of an infectious nature.

Some assistance in diagnosis is occasionally gained by exploration of the sinus by transillumination with an incandescent lamp, the lamp being applied just beneath the orbital arch. However, the diagnostic value of this method is *nil* unless it prove positively the presence of pus in the sinus. If the latter exist the area corresponding to the extent of the sinus, which should appear illuminated, is in shadow, owing to the presence of pus. Transillumination is of much less value as a means of exploration of the frontal sinus than it is for the maxillary antrum. This method of examination as an aid to diagnosis is very uncertain. It is well known that the sinuses vary in size and shape in the same individual. One sinus may be completely wanting or entirely filled by a bony tumor. The dimensions of the frontal sinus are very variable, and they sometimes communicate with each other, or with the ethmoid or the orbit. All these facts contribute to the uncertainty of the results obtained by transillumination and to the possibility of a faulty diagnosis.

Treatment: An abscess of the frontal sinus having been recognized, the indications are to open it as soon as possible, drain it carefully, inject bactericidal solutions, and put a stop to the suppurative process. In some rare cases of acute empyema it may be possible to open the sinus internally by enlarging the infundibulum through the nose with a curet, and thoroughly irrigating the sinus by means of a catheter. But this is an extremely difficult procedure, as every one knows who has tried it, and never entirely satisfactory. Moreover, the opening of the ethmoid cells through the nasal meatus which is often necessary in these cases, is a difficult and dangerous undertaking. Hence it seems fair to state that the attempt to cure an empyema of the frontal sinus by enlarging the infundibulum in the nose, and by irrigation of the sinus from the nasal fossa through the fronto-nasal canal, is justifiable only in very recent cases and where the natural conformation of nose admits.

In all chronic cases, and in most of the acute cases, the frontal sinus should be opened externally by the Ogston-Luc method. The region of election is at the lowest part of the anterior wall of the sinus, immediately above the root of the nose. The external

incision should be from an inch and a half to two inches in length, and should extend far enough toward the opposite side to facilitate an opening into the other sinus, if such a procedure prove to be necessary. The operation is entirely devoid of danger, and if properly done always succeeds in effecting a cure. Luc prefers to open the sinus by means of the gouge and mallet, and advises that after the removal of the first splinter or scale of bone the deep or posterior wall of the sinus be protected by a metal shield against any possible danger of injury from the further use of the gouge. I have found it equally easy to use at first a small trephine, half an inch in diameter, and then to enlarge this opening by the gouge. The dimensions of the opening into the sinus depend somewhat upon the extent and chronicity of the lesion, but should always be large enough to admit of free exploration of the entire sinus. After evacuation of the pus all fungosities and osteophytes should be thoroughly removed by the curet. To this end it is better to take away the entire anterior wall of the sinus. The septum between the sinuses should then be examined, and if found perforated should be removed by the gouge, and the cavity of the opposite sinus thoroughly curetted. To do this it may be necessary to open through the anterior wall of this sinus, which can be done in the same way by extending the external incision beyond the median line.

In view of the somewhat frequent occurrence of abscess of both sinuses, some operators have advised opening the frontal bone in the median line, and extending the opening toward each sinus, and I have done this recently with very satisfactory results in one case.

In most of the chronic cases it will be found necessary to open freely into the ethmoid cells, and in every case a large, free opening must be made through the fronto-ethmoidal canal into the nasal fossa of the corresponding side. The whole cavity is then to be washed out with a solution of mercuric bichlorid (1:1,000), the irrigation being kept up until the fluid runs freely from the nose. A rubber drainage tube is then introduced and carried from the nasal cavity well up to the bottom of the frontal sinus, and the irrigation again repeated. The external wound is then to be completely closed by sutures going through the entire thickness of the skin, and the usual antiseptic dressings are to be applied. The immediate closure of the external wound shortens the period of healing and reduces the ultimate cicatricial deformity to a minimum.

In some cases it will be found that nature has caused a fistulous opening, which is usually found just beneath the superior orbital arch, at the supero-internal angle of the orbit. Luc states that the presence of this fistulous tract should not contraindicate the performance of the above operation. After the latter has been done and the sinus completely cleaned out, the fistulous tract may be treated in the usual way by incising the tract throughout its entire length, and then freshening the edges and stitching them together. This seems sound advice, though I have had no experience with fistulous openings into the frontal sinus.

All attempts to relieve or cure chronic empyema of the frontal sinus by intra-nasal treatment alone should be regarded as futile. In view of the frequency with which both frontal sinuses are involved in the process, Moure suggests making a horizontal incision in the usual place, but extending across the glabella to the opposite side, and then making a vertical incision upward in the median line, thus admitting of the dissection of two flaps of skin, and exposing the anterior walls of both frontal sinuses, which may then be opened in the usual way.

Tumors of the Frontal Sinus.—The only tumor originating in the frontal sinus which is encountered with any degree of frequency is the osteoma or ivory exostosis. By its pressure it causes absorption of extensive portions of the bony wall, and eventually an opening not only into the cavity of the orbit, but also into the anterior fossa of the skull. Its etiology is extremely obscure. It has been attributed to syphilis, gout, rheumatism and traumatism, but it is well to look for the predisposing cause at least in an abnormal embryonic condition of the bone cells.

Symptoms: Osteomata always grow very slowly and painlessly. They are never sensitive on pressure, and when they cause pain it is either from pressure on some nerve or from some localized inflammation. As the tumor grows the eyeball is displaced, and there may even be such extreme exophthalmos that the eyelids cannot be closed over the eye, and the cornea ulcerates. There may be marked disturbance of vision, and the usual ophthalmoscopic evidences of neuro-retinitis and atrophy of the optic nerve. The diagnosis is made from the location of the tumor, its extreme hardness, its immobility, and its direct connection with the bone. It may be confounded with distention of the frontal sinus or of the ethmoid cells.

The prognosis is favorable if the tumor has not encroached upon the anterior fossa of the skull.

Treatment: This consists solely in its operative removal. Owing to the extreme hardness of the tumor its removal is very tedious and a matter of considerable difficulty. If the tumor is of great size and has probably involved the anterior cerebral fossa, it may be wiser not to attempt its removal, owing to the danger to life. The periosteum must first be incised and carefully stripped from the tumor for some little distance beyond its base in all directions. Then a narrow groove should be cut with a chisel or gouge and mallet around the base, the blows with the mallet being made gently and somewhat rapidly until the tumor is loosened. Then a gentle rocking to and fro will usually suffice to detach it. If the tumor be found of ivory hardness, small holes may be drilled in it by means of a dental engine, and the operation subsequently completed with the chisel and mallet. The usual antiseptic dressings are then applied, and suppuration rarely occurs.

The Maxillary Antrum.—Diseases of the antrum are by no means so rare as has been supposed, and this is probably due to the fact that the antrum has not always been carefully examined. The inflammatory diseases most frequently met with here are mucocele and empyema, the latter being by far the more common. The subjective symptoms are practically the same in both.

Empyema of the Antrum.—Pus may collect in the antrum as a consequence of inflammation extending from the nose, or of empyema in the sphenoidal antrum, ethmoid cells, or frontal sinus, or it may originate in the antrum itself. If the collection of pus be considerable, it may flow into the nasal meatus through the ostium maxillare, and out through the nostril or back into the pharynx. The most common source of purulent inflammation in the antrum is disease of the teeth or caries of the alveolar arch, especially of the posterior molars, forming first subperiosteal abscess, and then abscess of the antrum.

Symptoms: Pain is the most constant symptom, though if drainage be free it may be slight or entirely absent. It is located in the cheek, is frequently periodic in character, and is often accompanied by an unpleasant odor from the decomposition of retained secretions. The escape of pus from the antrum is positive evidence of disease. The orbital symptoms are more or less displacement or

protrusion of the eye, orbital cellulitis and chemosis, loss of vision from neuro-retinitis or atrophy, due to pressure on the optic nerve and obstruction of the return circulation, and panophthalmitis from strangulation of the tissues. Many cases of empyema are so slow and insidious in their progress and so slight in their symptoms that their existence is ignored by the patient, until some violent retro-ocular or orbital inflammation or some grave cerebral complication demands a careful investigation of the cause. There are other cases in which, in the course of a maxillary empyema of dental origin, are manifested symptoms not due to any visible involvement of the cellular tissue of the orbit, such as narrowing of the visual field, atrophy of the optic disc, and irido-choroiditis with opacities of the vitreous. This makes it necessary to consider how intimately connected are the maxillary antrum, the sphenoid antrum, and the ethmoid cells with each other, and how comparatively near each other in the nose are the openings of these sinuses. Masked by the readily recognizable symptoms of empyema of the maxillary antrum, a similar condition in the sphenoid and ethmoid may be overlooked. Lesions in these sinuses may explain a certain number of orbital complications which have hitherto been attributed to reflex action. It is necessary to exclude disease of the sphenoid or ethmoid sinuses before we can make a positive diagnosis of empyema of the maxillary antrum alone. Owing to the ostium maxillare being the lowest of the three openings, the antrum may frequently become the receptacle for pus coming from the other sinuses, and guided into it by a semilunar fold of mucous membrane in the nose.

The extension of the disease from the antrum to the orbit may take place theoretically in three ways, viz.: (1) By direct propagation through the bony roof of the antrum. (2) By means of the lymphatics. (3) By means of the veins. The first and by far the most frequent channel through the floor of the orbit occurs by osteo-periostitis. The second would affect the eye and orbit by means of a retro-ocular inflammation. The third would cause an orbital cellulitis without any periostitis. In the great majority of the cases the orbital cellulitis is the result of an osteo-periostitis of the orbital floor, which is very thin and often shows openings, through which the infection is propagated directly from the antrum to the orbit. If the case pursues an acute course, we have a train of symptoms which is easily followed, beginning with dental caries,

inflammation of the sinus, closure of the ostium maxillare, symptoms of pus retention, necrotic osteitis of the roof of the antrum, orbital cellulitis, and then, if the case is not radically treated, osteitis of the roof of the orbit, abscess of the brain, and death. If the inflammation is a chronic one its course is much slower and more insidious, until a marked failure of vision reveals an optic neuritis or atrophy due to retro-bulbar neuritis.

We are sometimes aided in our diagnosis of antrum disease by employing the method of transillumination. This method has very marked limitations, but is more useful and gives more real diagnostic aid in disease of the maxillary antrum than in affections of any of the other sinuses adjacent to the orbit. Certain possibilities should not, however, be forgotten. The typical triangular pyramidal form of the antrum is exceptional. The floor of the sinus may be on a lower plane than the nasal fossa, by excessive absorption of the alveolar border. The antrum of the other side may be higher, and the illumination might lead us to diagnosticate an abscess in the antrum which stood higher. One sinus may be entirely absent or filled by a solid exostosis.

The examination of the antrum by illumination must be made in a dark room. The method devised by Heryng, improved by Vohsen, and still further improved by Luc and Escat, is probably the best. A four—or five—candle-power lamp, connected with a battery and a rheostat by means of ordinary insulated wires covered with rubber tubing is placed in the mouth, the lips are closed over the connecting rubber tubes, and connection is made. If the antrum is normal, the face takes on a ruddy glow, the brightness differing in spots according to the thickness of the solid parts of the face. The brightest spot will be at the lower margin of the orbit, where the wall is thinnest. If the light encounters pus, or polypi, or solid tumors, there will be more or less darkening of the corresponding side of the face. Burger attaches much importance to the illumination of the eye by the transillumination, the signs of which are a red glow from the pupil. The Heryng method of illumination is valuable only when the corresponding nasal fossa is perfectly healthy, and contains nothing to intercept the luminous rays. The method of Escat, the retro-maxillary illumination, when carefully and properly done, is a much better way of lighting up the maxillary antrum, for it does away with any possible impedi-

ment to the passage of the rays through the nose. This illumination "by contact" requires a special lamp of about 3.50 to 4 volts, inclosed in a cylindrical metal capsule, which is open on one of its sides, and fixed at the level of the antrum by a metallic arm. The apparatus in the form of a pipe is fastened to the handle of the galvano-cautery, which connects it with a battery of two accumulators, provided with a rheostat. To illuminate the sinus the lamp must be carried into the retro-maxillary fossa, the posterior extremity of the superior gingivo-buccal furrow, behind the last molar. The furrow is open below and closed behind by a reflection of the mucous membrane from the maxillary tuberosity to the internal surface of the ascending ramus of the inferior maxilla. To give this retro-maxillary fossa its greatest dilatation the mouth should be half open and the dental arches separated anteriorly about one centimeter. The cheek is pushed away from the jaw by a tongue-depressor, so as to expose the last upper molars, and the lamp is passed along the alveolar arch as far as the last molar, the stem being horizontal and the lamp open upward until beyond the malar prominence. The handle is then raised and the lamp enters the retro-maxillary fossa. The cheek is then relaxed, the handle of the instrument is lowered about 45 degrees, the mouth is gently closed, and a slight rotation is given to the arm so as to turn the lamp toward the posterior face of the superior maxilla. The current is then turned on and the examination made. If the sinus is normal it is illuminated, which is indicated by two luminous red spots; a crescentic patch corresponding to the lower lid, and a lower, larger, but less brilliant patch corresponding to the "face jugale" of the antrum. If disease of the antrum be present the illuminated patches are absent.

Treatment: The diagnosis of empyema having been made, the only method which promises a cure is to open the antrum, carefully remove its contents, employ frequent irrigation with an antiseptic solution until pus ceases to be secreted, and then endeavor to close the artificial opening. The best method of operating is that suggested by Luc, and consists in making a large opening in the sinus at the level of the canine fossa. The sinus is then curetted and irrigated with a strong solution of zinc chlorid. This large opening is only temporary, however, and is made to serve a double purpose; first, to empty the sinus of its contents and facilitate the curetting, and second, to allow of the formation of a free opening between the

antrum and the nasal fossa for the purpose of drainage. The latter step of the operation is done as follows: The cheek is pulled away from the superior maxilla; a circular perforator run by a motor is introduced and directed against the inner or nasal wall of the antrum anteriorly and immediately above the level of the floor of the antrum. This perforator or trephine has a diameter of 9 mm. In some cases the opening is better made with gouge and mallet. The opening having been made in the inner wall, a curet is introduced through this hole into the nasal cavity, so as to clear away any floating folds of mucous membrane. A short, bulbous-pointed style is then introduced through the same opening, and, its point being guided by the little finger in the nose, is pushed into the nasal fossa. A strong silk cord is then fastened to the eye of the style, and the instrument is drawn out in the reverse direction. This pulls the silk cord from the nose into the antrum and thence out through the buccal opening. To the buccal extremity of this silk cord a drainage tube is attached, and the cord is then again drawn through the antrum and through the opening into the nasal fossa and out through the nose, and draws the drainage tube after it. This is pulled through until one end of the drainage tube is in the antrum and the other in the nasal fossa. The cavity of the antrum is then wiped dry and powdered with iodoform. The lips of the wound opening into the antrum from the mouth are then closed from behind forward by fine catgut sutures. The antrum should be irrigated several times daily, after the wound in the buccal cavity has thoroughly healed, with a solution of mercuric bichlorid (1:2000), or a saturated solution of boric acid. The drainage tube may be removed from the fourteenth to the twenty-first day. When the patient uses a handkerchief the antrum is generally emptied during the act. All suppuration from the antrum usually ceases in about six weeks. It is easy to irrigate the antrum, even after the withdrawal of the drainage tube, by means of a short curved catheter. Unless the nasal meatus is kept perfectly healthy empyema of the antrum is obstinate in healing.

Tumors of the Maxillary Antrum.—Pathological neoplasms of the antrum are difficult to recognize if they have not already caused distention of the cavity. The symptoms are pain in the teeth of the upper jaw, a dull ache in the region of the antrum, discharge of pus and blood from the nose in lying down, and more or less

epiphora. The pain, which may be in the region of distribution of the infra-orbital nerve, is not apt to appear until the tumor has attained considerable size, and has more or less completely filled the antrum; the distention of the walls of the cavity causing the pain by pressure on the nerve twigs. As the tumor grows the walls of the antrum are gradually absorbed, and the tumor extends into the nose by extensive enlargement of the ostium maxillare, or through the roof of the antrum into the orbit, or in rare cases through the anterior wall of the antrum into the buccal cavity. When the growth enters the orbit through its floor, the eyeball is displaced upward and outward or upward and inward. These tumors of the antrum gradually extend into all the neighboring cavities. They early involve the nasal meatus, thence extend into the spheno-maxillary and palatine fossæ and pharynx, and finally perforate the base of the skull. They usually involve the orbit later, and sometimes extend into it from the ethmoid cells, even before the floor of the orbit is perforated. In no case is it possible to diagnosticate a tumor of the antrum early in its development.

The treatment of these tumors consists either in extirpation of the growth or in complete resection of the superior maxillary and other bones which may be found diseased.

The Nasal Meatus.—The intricate nature of the nasal meatus, with its many folds of mucous membrane, its spongy bones, its intimate connection with all the adjacent sinuses, and its proximity to the orbit, is sufficient cause for the extension of disease from this region to the orbit, and render necessary a thorough examination into the condition of the meatus in all cases of suspected morbid growths. The most common affection met with here is a purulent rhinitis, either independent in itself or secondary to empyema of the maxillary antrum or of the ethmoid and sphenoid sinuses. Prompt curetting of the entire nasal meatus, with removal of the spongy bones in whole or in part, is the only treatment which will lead to a cure. Unfortunately a purulent rhinitis is secondary usually to a purulent process in the ethmoid cells or the sphenoid antrum, and the treatment must be primarily directed to these cavities.

Polypoid growths in the nose may extend into the ethmoid cells and produce secondarily many of the symptoms of orbital disease. These growths often possess a partly cartilaginous consistence. It

has never been definitely determined whether all the visual defects met with in connection with polypi of the nasal meatus are caused by pressure of the after-growth on the optic canal or in the ethmoid cells, and thence against the inner wall of the orbit. Whatever the cause, the loss of vision is due to pressure on the optic nerve.

Tumors of the Nasal Meatus.—Tumors of the nasal and pterygo-palatine fossæ may enter the orbit through the infra-orbital fissure. They cause neuralgia of the infra-orbital or posterior alveolar nerves. The orbital portion of the tumor may divide into two branches; one involving the orbit, and the other extending into the cranial cavity through the supra-orbital fissure. They eventually extend into all the neighboring cavities.

In the treatment of these growths it is absolutely necessary that they should be completely extirpated early in their development, together with all the surrounding tissues, including the bony walls of the cavities involved. If a malignant tumor has already invaded the deep bones of the face and base of the skull, including the cavities contained within them, the case may be regarded as hopeless, and while an operation may relieve the patient temporarily, it undoubtedly hastens the fatal termination.

Diseases of the Ethmoid Cells.—The cells of the ethmoid form a pneumatic labyrinth which increases in width from above downward. The ethmoid anteriorly is connected with the lachrymal bone, and posteriorly often with the orbital portion of the palate bone. The posterior ethmoid cells and the sphenoid antrum open into the superior nasal meatus. In rare cases the ostium maxillare is absent, and the maxillary antrum communicates with the ethmoid cells and sphenoid antrum. Occasionally the lateral ethmoid cells project markedly toward the orbit.

The symptomatology of disease of the ethmoid labyrinth is always perplexing and a diagnosis is thus rendered extremely difficult. In inflammation of the ethmoid cells positive subjective symptoms are wanting. In mucocele the symptom is a gradual, painless development of a tumor on the inner wall of the orbit, which later shows signs of fluctuation, and the eyeball is displaced forward, outward, and sometimes downward. Until fluctuation appears it may be confounded with an osteoma growing from the inner wall of the orbit. Puncture or incision of the tumor will decide the diagnosis. Ectasia of the ethmoid cells occurs mainly in young persons. From a cos-

metic standpoint these cases should be treated early in their course, before the ectasia becomes too large; for in the latter case the posterior part of the orbital wall cannot be replaced, and there is more or less deformity. In empyema of the ethmoid cells, whether acute or chronic, the periosteum suffers also, and this may lead to necrosis. In caries of the lamina papyracea, the subjective symptoms are dull pain, increased by pressure in the neighborhood of the diseased bone and vertigo. Redness of the lids at the inner canthus may be present. A hard tumor may be felt at the inner canthus, and later occur fluctation, strabismus, diplopia, exophthalmos and limitations of motility of the eye, and impaired vision. Pus found in the region of the middle turbinated bone must come from the posterior ethmoid cells. If the empyema is of an acute character, symptoms will appear in the nasal fossæ and orbit, such as difficulty of respiration through the corresponding nostril, a nasal tone to the voice, more or less epistaxis, and headache. If no relief is given by way of the nasal fossæ the disease will invade the orbit and cause the symptoms above mentioned. If the empyema be chronic the ectasia of the labyrinth may be confounded with a neoplasm in the ethmoid.

The etiology of empyema of the ethmoid is obscure, sex and age seeming to exert no influence. The nasal fossæ contain a large number of microbes, which may easily enter the ethmoid cells and there multiply and set up an inflammatory process. Traumatism of the nasal and orbital bones may also set up an empyema. The primary cause of such inflammation is the presence of some infecting agent, which sets up an irritation and causes a thickening of the mucous membrane of the labyrinth, which subsequently ulcerates and exposes the bone. This becomes carious, with the formation of sequestra, and the labyrinth is destroyed, or if the process is not destructive, neoplastic tissue is formed with thickening of the wall of the ethmoid cells and exostosis.

Transillumination as a means of diagnosis in disease of the ethmoid cells is uncertain and perhaps dangerous. It is uncertain because anatomical anomalies exert an effect on the transmission of light. It is dangerous because it may lead to unjustifiable operations. The sinuses may vary both in shape and dimensions, not only in different individuals, but also from one side to the other in same person. As abnormal sinuses are more numerous than typical cases, transillumination cannot here render any great service. It

may help to confirm a diagnosis already made, but it should not be relied upon.

Treatment: In all cases of empyema the cells should be opened, the pus evacuated, and all fragments of carious bone removed. A free opening should be made through the nasal meatus into the ethmoid cells with a curet, and if the swelling has presented in the orbit it should be freely incised through the conjunctiva, and free irrigation from the orbit through the ethmoid and into the nose should be carried out. A drainage tube should then be introduced from below upward into the ethmoid cavity, and daily irrigation should be kept up until all discharge ceases.

Tumors of the Ethmoid.—Neoplasms of the ethmoid are usually of the sarcomatous or myxo-sarcomatous type, though occasionally other varieties are met with. A morbid growth confined within the ethmoid cells gives rise either to no symptoms at all, or merely to headache, paroxysmal in character. The orbital symptoms are the same as those of tumor of the orbit. The motility of the eyeball is limited. The vision may be slightly affected, or there may be complete blindness. The visual field may not be involved. If the tumor has entered the nasal meatus the mouth is more or less open, the speech is nasal, and later there is loss of the sense of smell. There may be more or less dropping of clear fluid from the nose, even in the case of solid tumors, owing to a communication between the upper wall or roof of the ethmoid cells and fissures at the base of the skull. There may also be orbito-palpebral emphysema, and hemorrhage from the nostrils on one or both sides.

Enchondroma of the ethmoid is very rare, and always starts from the base of the skull.

Polypi originating in the ethmoid cells and confined within these limits are relatively rare, but nasal polypi usually start from the ethmoid. Polypi of the nasal meatus may conversely penetrate into the ethmoid labyrinth.

Fibroma originating in the ethmoid has been observed but once.

Osteoma of the ethmoid usually begins in some neighboring cavity, and the first objective symptom is a very hard tumor just behind the inner canthus, which is followed by exophthalmos and diplopia. The tumor also usually involves the nasal meatus. The vision may be normal or impaired. There may be papillitis of the optic nerve, and suppuration of the cornea from inability to close the lids com-

pletely over the eye. If an osteoma be encapsulated it may easily be separated from its bony attachments. These osteomata never tend to penetrate the cranial cavity, and there operative removal is not as a rule difficult. The only treatment for tumors of the ethmoid bone and cells consists in their radical removal. Further remarks upon the kind of surgical interference and its prognosis will be found at the end of this paper, to which attention is invited. The surgical attack should always be made through the orbit.

Diseases of the Sphenoid Antrum.—Some curious anomalies are often met with in the sphenoid bone. The anterior, posterior, and lateral walls of the antrum are sometimes very thin. The anterior walls may be entirely wanting, and then the sphenoid antrum opens into the ethmoid cells. The anatomical relations between the ethmoid and the sphenoid are so intimate that any chronic process starting in either bone is almost certain to involve the other at a comparatively early date.

The subjective symptoms of empyema of the sphenoid antrum are the same as those of empyema of other neighboring cavities, though the headache is located at the back of the head, and the ocular lesions are either purely functional or affect the optic nerve back of the eyeball. Disease of the body of the sphenoid, whether ending in caries or not, may cause not only exophthalmos but also disturbance of vision, on account of the close proximity of the optic canal. Pain occurring in the course of disease here may show itself in a totally different part of the area of influence of the trifacial nerve, and thus lead to a faulty diagnosis. Attempts have been made to treat the interior of the sphenoid antrum through the nose, but the position of the opening into the nose is so variable, and the use of the rhinoscopic mirror is so unsatisfactory, that such attempts have usually been abandoned. Transillumination is of no practical value here in assisting us in a diagnosis. Inasmuch as the ethmoid cells are usually involved in abscess of the sphenoid antrum, if entrance through the nose proves futile it is better to open the ethmoid through the orbit, clean out the contents, and then penetrate the sphenoid antrum and thoroughly curet its interior.

Tumors of the Sphenoid.—So long as a new growth is limited to the sphenoid antrum, either the subjective symptoms are entirely absent, or there may be severe pain in the head, usually in the occipital region. If the process extends to the adjacent structures,

symptoms arise which point to the probability that the sphenoid bone is the seat of the disease, such as blindness due to compression of one or both optic nerves, and the visible or tangible presence of the growth in the nose, ethmoid, orbit, or skull. The entrance of the growth into the cranial cavity may occur without any subjective symptoms, or there may be sudden, severe headache. If the progress of the growth is very rapid, meningitis or cerebral abscess will result. The ophthalmoscopic symptoms are either papillitis or atrophy of the optic nerve due to perineuritis and pressure of the swollen nerve-sheath on the optic nerve fibres. In some cases the pressure is exerted on the nerve in the optic canal. Tumors here may perforate the middle fossa of the skull without causing blindness. If an orbital tumor rapidly causes blindness, and the latter starts from the temporal side of the field and leaves the region of the macula lutea unaffected to the last, and if at the same time a growth appears in the nose, it is probable that the tumor began in the sphenoid antrum.

Polypi may develop in the antrum independently, and may penetrate the roof and enter the middle fossa of the skull, and even cause meningitis, without giving rise to any disturbance of vision.

Osteomata of the sphenoid are sometimes developed from the embryonic remains of cartilage. They tend to penetrate the cranial cavity, and by compression of the optic nerves in the optic canals early lead to blindness of both eyes. The same symptoms may also be produced by hyperostosis and exostosis of the sphenoid.

Enchondroma and carcinoma of the sphenoid are rare diseases.

Sarcoma is by far the most frequent morbid growth met with here. In sarcoma of the base of the skull it is exceedingly difficult to determine the point of origin. The general symptoms are loss of sight, hearing, and smell in the order named; facial paralysis and neuralgia, vertigo, somnolence, vomiting, loss of memory, hemiparesis, and loss or impairment of speech.

A few words in conclusion in regard to neoplasms of the deep sinuses of the face. Extra-orbital tumors originating in the bones or sinuses adjacent to the orbit form a class of cases which are the most serious and desperate of all. The prognosis in these cases must be regarded as absolutely bad from the beginning. No matter where the growth originated, all the deep bones of the face and their communicating sinuses eventually become involved. By emptying

the sinuses and extensive exsection of the diseased bones, we do not succeed in arresting the progress of the malady, and subsequent operations become necessary, which sap the strength of the patient and weaken his powers of resistance. The tendency of these malignant tumors is to grow forward or outward rather than inward or backward, and this fact probably explains why patients afflicted with such tumors live as long as they do, and why they usually die from exhaustion rather than from extension of the growth to the brain. The tendency to extension outward and forward of these tumors may perhaps also explain the increased rapidity of their growth after exenteration of the orbit, or after the more radical operation of exsection of the diseased bones. The empty orbit is a free space toward which there is no resistance to the extension of the neoplasm, while backward or upward its progress is hindered by a bony wall of varying thickness, in which absorption goes on slowly, even when the periosteum has been removed. Three years ago I presented to the American Ophthalmological Society the following conclusions on this branch of the subject, and my experience since has led me still further to emphasize their importance: 1. The prognosis of all forms of malignant orbital tumors is unfavorable; and if the tumor is primarily one of the deep facial bones or their sinuses, the prognosis is positively bad. 2. With the single exception of encapsulated tumors of the orbit, surgical interference is almost invariably followed by a return of the tumor, and the growth of the secondary tumor is more rapid than that of the primary lesion. With each succeeding operation the period of quiescence in the return of the tumor grows shorter and the rapidity of the growth increases. 3. The patient's family, and in certain cases the patient himself, should in the beginning be told of the serious nature of the trouble, and be warned that complete removal of all diseased parts is a hopeless task. The burden of the decision as to surgical interference must rest upon the shoulders of the patient. 4. Repeated operations in these cases undoubtedly shorten the life of the patient. While it is our duty, therefore, to operate in all cases in order to relieve severe or unbearable pain, we should be slow to operate merely for the sake of relieving temporarily physical disfigurement or deformity, especially if we are convinced that by so doing we shorten the life of the patient, even if that shortened life is rendered more bearable.—*Medical Record, July 15, 1899.*

DEFORMITIES OF THE TEETH AND PALATE DUE TO NASAL OBSTRUCTION. By Mayo Collier, F.R.C.S. Eng., M.S. Lond. Read before Odontological Society of Great Britain. You will notice that here I have a case where the whole range of the maxillary teeth is well inside the range of the mandibular teeth, and in this case the palate is very elevated; in fact, there is extreme atrophy of the whole maxilla compared with the mandible. In this case you will notice there is general atrophy, with extreme elevation of the palate and destruction of all the teeth, and there is perforation also of the palate in front. In this case, as one often sees, the arch of the maxilla is simply disarranged to the arch of the mandible. Instead of the arch taking a certain curvature it is apparently squeezed, so that the incisor teeth of the maxilla are well in front of the incisor teeth of the mandible. *Per contra*, we find sometimes cases where the incisor teeth of the maxilla are well behind the incisor teeth of the mandible, and with apparently no disarrangement of the molar teeth of the maxilla.

If my explanation of this deformity is correct we have a means of preventing this disease, and of course in preventing it we shall avoid a very large number of disfigurements of the whole face. I need not ask you to call to mind the facial expression associated with this peculiar distortion of the maxilla—the under-hung jaw, the flattened face, the protruded nose, and the general appearance of more or less want of mental faculty.

Now I have heard three explanations given for this state of things. One was the "hereditary tendency." This term would cover an immense field, but I suppose that what is meant is that the individual inherits from his parents the tendency to this peculiar deformity, commencing at his birth and progressing until full development of the maxilla. Then I have heard that there is a tendency, although the maxilla may be fully and properly developed at birth, to this disposition of the high palate and irregular teeth—we will call it a post-natal tendency to the development of this state of things, although the child may have a perfectly symmetrical jaw at birth. I am told that there is a tendency for the jaw to become distorted and the maxilla to become smaller than the other. The third explanation is that when an individual gets obstruction of the nose from a common cold or otherwise, he sleeps with the mouth open, the constant contraction of the muscles on the maxilla causes

a compression of the upper alveolar arch, and so disarranges the relation between the palate and the alveolus. The palate is not elevated, but the alveoli are brought down, and the squeezing of the muscles is sufficient to distort the maxilla. This is almost impossible, because there is no muscle attached to the maxilla capable of exerting sufficient traction or pressure. The buccinator is the only muscle attached to the margin of the alveoli, and the line of its traction is directly backwards. The masseter muscle is altogether posterior to and hardly in contact with the upper jaw. Its attachment is to the malar bone and zygoma and not, except by a very few fibres, to any portion of the upper maxillary bones.

Now I would remind you that associated with this state of things the septum of the nose is nearly always, from the pressure and elevation of the palate upwards, more or less crumpled or deflected. Deflections of the nasal septum, causing obstruction, are one of the commonest affections of the nose.

The first impetus given to me to examine into this question was an observation made by the late Sir Morell Mackenzie that he was not satisfied with the usual explanations offered to account for the common deviations of the nasal septum. First, I instituted an examination on my own account of living subjects. I examined 1,050 cases and made a careful note of their exact conditions. Of the 1,050 cases I found 90 per cent had some bony deflection of the nasal septum. Of course an obstruction of the nose may be due to some elevation or prominence or growth of the outer wall or roof of the nose, but I say 90 per cent of these cases had some obstruction due to deflection of the septum. Of these 90 per cent not one in fifty was affected below the age of ten; all young persons had perfectly straight septa. Therefore you must admit at once that that goes a long way towards counteracting the view that deflections of the septum are at all events hereditary, and that some cause is present after birth to dislocate what was a straight septum.

Sir Morell Mackenzie examined 2,850 dried skulls to see if there were any permanent record of this deflection of the nasal septum in them, and found 1,850 were affected by a permanent distortion of the bony septum of the nose. That would leave out a large number where the cartilaginous septem of the nose could not be examined. We have arrived at this point upon our investigations about the septum of the nose that, whatever the dis-

tortion, it is the result of some cause after birth. In addition to that, if I can bring about this deflection of the nasal septum and manufacture a force whereby the walls of your nasal box will collapse, I think that will be corroborative evidence that a state of things may exist capable of producing these deformities. It is well known that the nasal septum is a thin, partly bony and partly cartilaginous partition in the mid-nasal region, and that the main office of this structure is to expand the mucous area of the nose. It has little function in maintaining the nose in its position, nor any function in acting as a buttress to the bones of the face. I would remind you that you could have complete absence of the septum of the nose without disfigurement. A child can be born not only with a defective palate, but can lose the septum in afterlife through syphilis or otherwise without the smallest distortion or want of symmetry of the nasal organ.

What would happen if one side of the nose should get blocked up? Naturally a greater stream of air will pass on one side than on the other. The force of nasal inspiration amounts to a certain number of ounces on the square inch, and if this strikes on a thin and easily displaced septum, with no counteracting force to oppose, this pressure will tend to displace the septum to the other side. Once having done so, you will see how the displacement tends to increase, and what must be the inevitable result is this: If one side of the nose be obstructed—and very little is required to obstruct it—the inequality of the nasal respiration must throw a very large pressure on the whole of the area of the septum, and so displace it further and throw a pressure on all the walls of that nasal box which is closed up. A stream of air passing down one side and no stream of air passing down the other side, the result is that the stream of air passing over the palate into the larynx will draw out a certain amount of air in the closed side of the nasal chamber. One may doubt this, but if you will take an ordinary piece of bent glass with mercury in the bend, attach a rigid tube to it and put it into the nose, you will notice that at each marked inspiration the mercury will rise distinctly on the proximal end and fall into the distal one. That is a measure of the amount of rarefication of the air that must take place in that chamber during each inspiration, and is a record of a fact for which there is no other explanation. If you convert that into inches of mercury you will find that it comes to

2½ lbs. to 3 lbs. of pressure to the square inch. Taking the septum of the nose as nine square inches you have there a force of 3½ lbs. acting on a thin septum 20,000 times a day, and you will not be surprised to find that this septum is pushed over if one nostril be permanently blocked for a considerable time. Not only is the septum pushed over, but you have a proportional force acting on the palate, on the upper jaw and on every wall of the nasal box—a force acting 20,000 times a day; and that force acting for only twelve months is quite capable of causing the atrophy and distortion associated with these cases.

If that argument be not sufficient I would draw your attention to experiments which have been reproduced fifty times over by Professor Ziem. He has taken young animals—sheep, calves, goats—to see what the effect would be of blocking the nostril permanently with antiseptic wool on one side. I say it is of supreme interest to you, because if you are capable of preventing these cases by judiciously ventilating the nose in youth, or pointing out to the parents that by so doing you can prevent the frightful distortion of the palate and upper jaw which you see in these cases, you are doing a great service to mankind. Now Ziem has proved that every obstruction of the nose when acting for some considerable time exerts widely-spread consequences on the development of the skull in young animals, one of whose nostrils is completely closed up for some time. Not only the upper jaw, but the whole of the frontal bone was affected. There was seen a deviation of the intermaxillary bone and the sagittal suture towards the shut-up side, also a lesser length of the nasal bone, of the frontal bone, and of the horizontal plate of the palate bone. The palate bone, as compared with the other side, was distinctly atrophied. The nasal and the frontal bones were atrophied, and the suture was pushed over. There was less steep elevation of the alveolar processes, also between the zygomatic arch and the supraorbital border, and smaller size and a symmetrical position of the vascular and nerve canals on the closed side of the nose. The distance of the two orbits from the middle line was unequal, which, as has been observed in men, leads to asthenopia, astigmatism and strabismus. The orbit itself was smaller on that side, and the frontal bone, the ear and the whole side of the face was arrested in its development.

I operated upon a case of cleft palate and made a very good palate,

perfectly flat. Nine years after this the boy developed a large amount of post-nasal growths and polypoid tissue that blocked his nose. After nine years this palate split in front and was pushed up into the nasal cavity. This was a case illustrating the effect of nasal obstruction. Of course when both sides of the nostril are blocked up through any cause the inspiration takes place through the mouth, and the air passing down in front of the palate would naturally abstract the air from the post-nasal space and cause a marked negative pressure in the nasal cavity. Under the circumstances you will have a sufficient force to press up the palate and to press in the walls of the superior maxillary bone, and compress the turbinal bones almost to the septum. I would point out that in looking into the nose in these cases one finds the turbinal bodies sometimes touching the septum and squeezed up to the mid line. The upper jaw and the cavity of the nose as a respiratory organ is completely placed in abeyance.—*Brit. Jour. Dent. Sc., July, 1899.*

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GOUT. By Jay F. Schamberg, A.B., M.D., Philadelphia. Read before Academy of Stomatology, March 28, 1899. The modern term gout was first employed in the thirteenth century by Radulphus or Rudolph. It is derived from the Latin word *gutta*, which means drop, for it was supposed that the peccant humors that gave rise to gout filtered drop by drop into the joints. The French have maintained the identity of these two words, so that *la goutte* means both gout and a drop.

A tremendous amount of literature has been written about the nature and ultimate causes of gout, and yet at the present time there is much conflicting evidence at hand. There is, however, one fundamental fact upon which all are in accord, namely, that gout is the result of an excessive amount of the salts of uric acid in the blood. This has been as indubitably proven as any fact in medicine. The origin of uric acid and the cause of its precipitation in the tissues are points which have not been so satisfactorily settled.

1. Garrod claims that an acute attack of gout is invariably produced by an excess of uric acid in the blood, due to an increased formation and to a greatly decreased elimination. Also that the inflammation is caused by the deposition in the joints of urate of sodium.

2. Haig contends that there is a diminished alkalinity of the

blood, and that the latter cannot therefore hold the uric acid in solution, so that it is deposited in the form of urates. He dissents from the view that an excess of uric acid is formed.

3. Ebstein presupposes a necrotic condition of the cartilages of joints due to the presence of dissolved urates, and believes that this invites the deposition of crystals of urates from a blood surcharged with uric acid.

4. The recent experiments of Luff have thrown considerable light upon the subject. He formulated the following conclusions: *a*. Uric acid is not normally present in the blood of man. *b*. Uric acid is normally produced only in the kidneys. *c*. Uric acid is normally formed from urea, probably by a conjugation of that substance with glycocin in the kidneys. *d*. Uric acid is present in the blood in gout as the soluble sodium quadrurate. It is deposited from the blood as the sodium biurate. *e*. The presence of uric acid in the blood is due to deficient excretion by the kidneys, and to subsequent absorption from the kidneys into the blood. *f*. Gout is probably always preceded by some affection of the kidneys, functional or organic, which interferes with the proper excretion of uric acid. The probable seat of the kidney affection giving rise to gout is in the epithelium of the convoluted tubules. *g*. In certain blood diseases and disorders accompanied by leucocytosis uric acid is formed within the system from nuclein. In such circumstances it passes at once into the blood and is rapidly eliminated by the kidneys.

Luff's experiments controvert certain long-cherished theories concerning the chemistry of gout. It has heretofore been commonly asserted that the production of uric acid was an intermediate stage in the final formation of urea. If Luff's conclusions are true, then the reverse is the case, namely, that uric acid is an ultimate product formed from the union of urea and glycocin, which is a substance elaborated in the liver. This view had been previously maintained by Garrod and Roberts. These gentlemen furthermore believed that the accumulation of uric acid in the blood of gouty patients is due to deficient excretion rather than to increased production. Garrod holds the view that among the causes exciting a gouty fit is a functional failure on the part of the kidneys. In chronic gout this functional failure is followed by structural changes in the kidneys. The primary pathological cause of gout then is, according

to Garrod, Roberts and Luff, a defective capacity of the kidneys for the elimination of uric acid. Levison states that gout cannot be developed unless a primary renal lesion is present, and that this is almost invariably of the nature of an interstitial change.

In what manner does uric acid produce the symptoms of gout? The probabilities are that the various symptoms are directly attributable to the mechanical irritation produced by the deposition of crystals of the biurate of sodium. In the case of articular gout the crystals present in the cartilages of joints give rise to inflammation and subsequently to degenerative changes. In the case of visceral gout there is good reason to believe that the various symptoms are in a large measure due also to the mechanical effect of the uratic shower. The mere presence of uric acid in the blood does not seem to injuriously affect the organism. Immediately preceding an attack of gout the patient usually enjoys excellent health. Again, in leukemia and other diseases in which leucocytosis is present uric acid is found in the blood, but it is rapidly eliminated and does no harm. It is its precipitation in the tissues and organs that is productive of the morbid phenomena of the disease.

After death we find that the cartilages and synovial membranes of joints are infiltrated with a chalky material which is fluid in its earlier state, but which later contains crystalline masses. The periosteum is frequently infiltrated with urates, but the bones, although they may be extensively diseased, remain free from the deposition. Sometimes post-mortem examination reveals uratic deposit in joints that have never given clinical evidences of this condition during the life of the patient. Uratic deposits are frequently found, in addition, in bursæ and in the subcutaneous connective tissue. They have also been discovered in the valves of the heart, the cartilages of the larynx, in the liver, kidneys, brain and other organs.

Etiology.—Among the various factors that give rise to gout, heredity occupies a position of prominence. Garrod states that "more than one-half of all gouty patients can distinctly trace their ailment to an inherited taint." Paternal transmission of the disease is much more common than perpetuation through the mother. Articular gout is overwhelmingly more frequent in men than in women. Out of six hundred and forty-eight cases reported but thirty-two were females.

The character and quantity of food are factors of the greatest importance. Excesses in both eating and drinking may be set down as among the most potent of all the causes of gout. The nitrogenized foods are those that are most harmful, the chief offender, of course, being meat. It is popularly believed that butcher's meat is much more injurious than the flesh of fowl. This is erroneous. Butcher's meat contains about nineteen per cent of albuminoid matter, whereas fowl contains twenty per cent and game twenty-two per cent. Fish comes next with seventeen per cent; eggs, thirteen per cent; oatmeal, twelve per cent; bread, eight per cent; rice and green peas, six per cent. Milk contains but four per cent, and green vegetables and fruits from one-half to two per cent. The amount of food ingested is an important element to be taken into consideration. It is evident that one might partake of the most highly nitrogenized foods provided the quantities were sufficiently small. For instance, cheese contains thirty per cent of albuminoid matter, yet in the quantity usually eaten it is not potent for harm. Haig says that anyone who indulges in meat twice a day, and in addition partakes of wine or malted liquor, may confidently expect to be gouty when he reaches the age of forty or forty-five.

From the remotest antiquity the deleterious influence of wine and other alcoholic beverages has been commented upon. It is not by virtue of the alcohol contained in these drinks, nor even because of their acidity, that their baneful effect is exerted. The gout-inducing properties of wines seem to be dependent upon the effect they exert upon liver metabolism and consequently upon the production of glycocin. The heavier wines, such as port, sherry and Madeira, head the list of gout-determining wines. Considerably less injurious are Burgundy and champagne. Least detrimental are claret, hock and Moselle. The distilled liquors, such as brandy and whisky, have comparatively little gout-inducing influence, although their alcoholic percentage is of course extremely high. It is not alcoholism but gluttony that calls gout into existence. For this reason the inordinate use of the malt liquors is particularly apt to give rise to gout. The moderate price of beer, porter and ale enables the masses to use them in extraordinary quantities. The watermen who raise ballast from the Thames are frequently afflicted with what is called "poor man's gout," which is due to the prodigious amounts of malt of which they dispose. Budd states that

twelve quarts of porter in a day is not an uncommon average. Those of you who have sojourned in small university towns in Germany are familiar with the enormous beer-drinking capacity of the German students. To imbibe fifty or sixty "krüge" during the course of an evening is but an achievement of mediocrity. In whisky-drinking Scotland and potato-eating Ireland gout is rare as compared with malt-consuming England and Germany. In the United States gout occurs almost solely among the rich and luxury-loving element of the population. Another not infrequent etiologic factor in the production of gout is lead-poisoning. Garrod found that thirty per cent of the hospital cases had been painters or workers in lead. Not improbably it is through the injurious effect of lead on the kidneys that gout is thus produced.

Symptomatology.—When one glances over the long array of symptoms that gout is convicted of producing, one is apt to remark, "Verily, thou hast enumerated all the diseases to which flesh is heir." And yet this interminable list is no exaggeration. It is not necessary to have one's big toe swathed in bandages nor one's fingers embellished with chalk-stones in order to admit the existence of gout. It has subtler manifestations which are capable of causing the diagnostician much difficulty. The classic attack of gout is familiar to all. The patient, after experiencing prodromal cramp-like contractions of the calf, is suddenly seized, usually in the early hours of the morning, with violent pain in the metatarso-phalangeal articulation of the great toe, which subsequently becomes reddened, hot, shiny and swollen. The body temperature rises to 102 or 103 degrees F. After a few hours of intolerable suffering there occurs an abatement of the pain and fever, the patient usually lapsing into a peaceful slumber. During the day the patient is apt to feel easier, but with the oncoming of the night there occurs an aggravation of the pain, until the total subsidence of the attack at the end of several days or a week. These so-called fits of gout recur from time to time, the intervals of freedom varying according to the mode of living of the patient. After several such attacks the disease arrives at its chronic stage. Other joints than the great toe then become involved. Their order of frequency is as follows: the heels, small joints of hands, ankles and wrists, knees and elbows, and finally and rarely, hips and shoulders. These joints are apt to become stiffened, ankylosed and deformed

through the gouty deposit and the subsequent inflammation. Frequently chalky concretions are visible around the joints, chiefly of the hands. They are also not infrequently present upon the helix of the ear and sometimes upon the eyelids. These nodules may make their exit through ulceration of the overlying skin.

The description just given is that of articular or regular gout. There is little difficulty in diagnosing the disease when it appears in this frank form. Frequently, however, it assumes various guises, implicating the heart, kidneys, nerves, respiratory or digestive tract. Such manifestations, which are termed irregular gout, are common in those who inherit the gouty diathesis.

Disorders of the stomach and intestines are commonly observed in gout. The most prominent symptoms are epigastric pain, a sense of distention after eating, acid eructations, and frequently loss of appetite, amounting in some cases to actual disgust for food. Occasionally there are violent cramps, vomiting, nausea and diarrhea. It is manifest that there is nothing distinctive about these symptoms. They are evidence of the existence of one or another form of dyspepsia. Clinical observers, however, have noted that many of these patients are in advanced life attacked with articular gout, the gastric and intestinal symptoms then suddenly disappearing. We have in this proof that the digestive and the articular disorders are simply interchangeable phases of the same diseased process. The heart and vascular system are often disturbed in gout. Increase of uric acid in the blood is apt to produce high arterial tension, hypertrophy of the heart, and later arterio-sclerosis and angina pectoris. Chronic bronchitis and asthma have long been known to be frequently associated with gout. Eczema, psoriasis, and other skin affections are commonly observed in patients with the uric acid habit.

It is but natural that the urinary tract, being the chief eliminatory avenue, should suffer in this disease. In many cases the irritation of the kidney by the excess of urates leads insidiously to chronic interstitial nephritis known as the gouty kidney. Deposition of the urates in the kidneys may lead to the formation of calculi, and it is here to be noted that the uric acid stone is by far the most common variety of both the renal and the vesical calculus. Painful and frequent urination occurs in a certain number of lithemic sufferers, and burning at the neck of the bladder and at the urinary meatus are among the commonplaces of practice.

The nervous system does not remain free from the encroachments of the uric acid disorder. Headache, especially migraine, not infrequently alternates with joint pains. Haig was able to produce attacks of migraine in himself at will, by resort to an exclusive meat diet for several days. Mental disturbances, such as depression of spirits, melancholia, hypochondria, and excessive irritability, are not among the rarities of experience. Neuralgias of the greatest obstinacy and severity are unfortunately common consequences of gout. They resemble the evolution of articular gout in their paroxysmal character and their tendency to recurrence. First in frequency is sciatica, which may occur as a simple neuralgia or an uncompromising neuritis. The next most frequent nerve attacked is the trifacial and its various branches.

In addition to the diseases above mentioned gout has numerous morbid affinities. That gall-stone bears a definite relation to gout is proved by the frequency with which this condition is found in individuals of gouty ancestry. An intimate relation between gout and diabetes long ago attracted the attention of physicians. Both diseases occur in florid, corpulent subjects who are great eaters and of inactive habits. Obesity is another morbid condition that is closely affiliated with gout. The children of gouty parents are apt to be fat and, on the other hand, the offspring of the obese are prone to develop gout. Excessive corpulence is by no means always due to gormandism, but is dependent upon certain deeply rooted nutritional errors peculiar to some constitutions.

I am sorry to say that in medical works on gout there is a surprising absence of allusion to the form of the disease called pyorrhea alveolaris. Occurring, as I understand it frequently does, before more striking evidences of gout are present, it constitutes a most valuable index of the underlying blood dyscrasia. In this manner its importance as a diagnostic clue in the detection of latent phases of this disease cannot be overestimated. From a pathological point of view pyorrhea alveolaris is strikingly analogous to articular gout. In an attack of gout there occurs a deposit of uratic salts in the cartilage and synovial membranes of the joint, followed by inflammation and subsequent degenerative changes. In pyorrhea the joint affected is the dento-alveolar articulation, with the precipitation of the uratic crystals in the pericemental membrane. Inflammation then occurs, the subsequent changes being only modi-

fied by the different environment. There is another dental condition that sometimes occurs in gout. Flint says that Graves calls attention to the habit of grinding teeth as peculiar to cases of gout. The habit proceeds from an uneasy sensation in the teeth, which is in this way momentarily relieved. This symptom occurs more frequently in adults, as the teeth may be considerably worn down by attrition.

Treatment.—As far as gout is concerned, it is unfortunate that individuals have no choice in the selection of their parents, for the sins of gouty fathers are certainly visited upon their children. Prophylaxis is an all-important feature of the treatment, and the key-note of prevention is moderation in eating and drinking. The Germans may laugh, as they do, at the water-drinking Americans, and cynically remark that water is fit only for washing; we may answer that it is the best means of human irrigation, and that water-drinkers seldom acquire gout. Adherence to the use of nature's beverages, milk and water, would save many devotees of Bacchus from chronic invalidism and untimely death. As has been already stated, the least injurious of alcoholic beverages are claret, Rhine wines, and brandy and whisky. Used in moderation these are not productive of great harm. Both a quantitative and qualitative regulation of diet is necessary in the treatment of gout. It is not necessary to absolutely interdict the use of meat, but the quantity should be restricted to a small portion once a day. Fish may often be substituted for red meat with advantage. The vegetables which are to be avoided by gouty patients are asparagus, tomatoes and green peas. Rhubarb had better also be eschewed. Luff has experimentally proved that the solubility of the biurate of sodium is markedly increased by the mineral constituents of certain vegetables, particularly spinach, Brussels sprouts, French beans, winter cabbage, turnips and celery. Patients should be encouraged to freely partake of these articles. The starchy and saccharine foods are often poorly borne by the gouty, so it is advisable that these classes of food-stuffs should be used in moderation. The excessive use of common table-salt lessens the solubility of sodium biurate, and it should therefore be employed as sparingly as is compatible with the palatability of the food eaten. The ordinary fruits may be added to the dietary without disadvantage.

Proper exercise graduated to the physical make-up of the patient

is essential. Even though gout be explained upon a theory other than suboxidation, it is evident that by stimulating elimination through the sweat-glands much of the burden of blood purification is taken from the kidneys. Gout is particularly apt to develop in those who are physically indolent, who lead sedentary lives, and who do not properly get rid of the waste products in the system.

Medicinal Treatment.—Mineral waters have been so largely used in the treatment of the uric acid diathesis that the industry of manufacturing natural mineral waters has been stimulated to a profitable degree. It appears from recent research that those waters containing considerable proportions of the sodium salts had better not be employed. The potassium and lithium waters in addition to being alkaline have a distinct diuretic influence which is most desirable. Pure unmedicated spring water is in itself capable of accomplishing great good. The total amount of fluid taken in the course of twenty-four hours should not be less than a gallon, most of which should be imbibed between the meals.

Among drugs the oldest and most efficient is colchicum. It is believed to have been used by the Greeks and Arabians under the name of hermodactylus. Most of the patent preparations for gout contain this as their essential ingredient. How colchicum does good in gout is not definitely known, but many years of experience have testified to its unimpeachable efficiency. In acute attacks of gout the wine of the root of colchicum may be administered in ten to twenty minim doses every few hours until nausea or slight purging is produced. In chronic gout ten drops three times a day is the average dosage. The salicylates are frequently employed, but Luff believes them to do harm.

Effervescent tablets of citrate of lithia are now extensively employed, and by their use one may manufacture in a few minutes an excellent and inexpensive lithia water. Various combinations of remedies have been from time to time recommended, but the necessary brevity of this paper has prevented more than a general outline of the therapeutic measures to be employed.—*International, July, 1899.*

* * *

ROLE OF PUS ORGANISMS IN DISEASES OF THE SKIN.—At the last meeting of the American Dermatological Association, Dr. G. T. Ell[illegible]t of New York, in opening the discussion on the above subject, stated that the causes of purulent dermatosis are usually of a

known chemical or microbic nature. Cutaneous infection occurs by metastasis from the interior of the body, or directly by bacteria finding an entrance through the cutaneous follicles. Upon the hairy scalp, beneath the nails, and in the perigenital region the saprophytic staphylococci can be found in large numbers. The staphylococcus pyogenes aureus or albus, or streptococcus pyogenes, is responsible for the abscesses of the skin and subcutaneous tissue. Phlegmon is probably caused by the streptococcus pyogenes. Carbuncle is due to the ordinary streptococcus, though other writers believe it to be due to a specific organism. To the action of the staphylococcus aureus is due the furuncle. Impetigo vulgaris is produced by an ochre-yellow coccus, called by Unna the impetigococcus. Folliculitis of the lanago hairs is caused by the staphylococcus, as is also acne vulgaris, according to French writers, in which category is also placed ecthyma. According to Sabourand certain tinlæ in the horse produce pus. As an instance of cutaneous infection by metastasis, the discovery of Neissler's gonococcus in a lesion of furunculitis in one suffering from gonorrhea is cited. Dr. Elliot says processes besides the recognized pyogenic cocci are capable of producing pus, and non-pyogenic organisms are capable, under certain conditions, of acquiring pus-producing properties.—*Med. Age.*

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INFECTIOUS ULCERATIVE STOMATITIS. By Dr. John S. Marshall, Chicago. Read before Section of Stomatology, Amer. Med. Assn., June, 1899. Stomatitis is an inflammation of the mucous membrane of the mouth. All inflammatory conditions which involve the gums, the inner surfaces of the cheeks, the lips and the tongue are usually included under the general term stomatitis. These affections are with few exceptions confined to infancy and childhood. Adults seldom suffer from these affections, except as manifestations of some other morbid condition.

The forms of inflammation of the mouth which are most common are *stomatitis simplex*, *stomatitis catarrhalis*, *stomatitis aphthosa*, *stomatitis parasitica*, and *stomatitis ulcerosa*. A clinical study of the inflammatory affections of the mucous membrane of the mouth will reveal in certain features a close resemblance to the inflammatory affections as they appear in the skin, while in other points they will present features which are common to the inflammatory conditions of the mucous membrane in general.

Stomatitis Simplex is the mildest form of stomatitis, and is generally expressed in a more or less intense redness of the surface of the mucous membrane of the cheeks, the lips and the gums, in the form of rose-red elevated patches, and is due to a localized hyperemia of the parts.

It is usually found in infants and young children, and is generally associated with some form of gastric or intestinal derangement. It rarely persists for more than a few days, and as a rule disappears with the subsidence of the gastric or intestinal disturbance. It is rarely seen in the adult. Occasionally it may persist and gradually pass into a severer type of the disease known as stomatitis catarrhalis.

Stomatitis Catarrhalis, or follicular stomatitis, is an affection which is often a symptomatic expression of some more grave constitutional malady, such as inflammatory conditions of the alimentary and respiratory tracts, etc, though it may be induced by the local irritation of erupting teeth. It is common among children living in unsanitary districts, but rarely seen in adults. The disease is characterized by a diffuse inflammation, spreading upon the hard palate as streaks and patches. The papillæ of the tongue are affected, many of them appearing as prominent tubercles. The mucous glands become swollen and prominent, and can be readily felt by passing the finger over the surface of the membrane. Later they appear as "grayish or grayish red elevations of the surface, surrounded by a reddened areola."—(Ziegler.) Tiny crypts sometimes develop, which are caused by the retention of the secretions. Swelling of the tongue, lips, cheeks and gums often occurs, accompanied by fetor of the breath, heat and dryness of the mouth, followed by an excessive salivary secretion. In the severer cases the gums become soft and spongy, and bleed upon the slightest provocation. Fissures form at the angles of the mouth and upon the lips, with exudation and the formation of crusts. The constitutional symptoms are fever, diarrhea, thirst, loss of appetite and sleeplessness.

Stomatitis Aphthosa, or canker sore mouth, is by some authorities thought to be a peculiar form of stomatitis catarrhalis, for the reason that the aphthous patches occur upon the oral mucous membrane during a catarrhal condition. The disease is most common in sickly children during the periods of dentition, and occasionally

later in life in those who are debilitated from illness or debauchery. It often occurs in women during menstruation, in pregnancy and during a puerperal period. Occasionally it is associated with pneumonia, bronchitis, diphtheria, exanthematous diseases, ague, whooping-cough and tonsilitis.

The disease appears in the form of small white or yellowish white patches upon the mucous membrane of the edges of the tongue and at the gingivo-buccal fold of the lips and the cheeks. They are slightly elevated above the surrounding membrane and are exceedingly sensitive. The patches are surrounded by a more or less inflamed zone, and have a tendency to spread and coalesce, forming larger patches.

The constitutional symptoms rarely exceed a slight elevation of temperature, loss of appetite, thirst and irritability.

Stomatitis Parasitica or *Thrush*, is a parasitic or mycotic affection, generally found in the mouths of infants and little children. The fungus which produces the disease is known as the "thrush fungus" or *oidium albacans*, which grows upon and between the layers of the epithelium, but develops most rapidly upon the squamous type of epithelium.

It is most common among ill-fed and bottle-fed children, and is due to unwholesome milk and improperly cleansed nursing bottles. The disease is infectious, and in foundling and maternity hospitals it spreads rapidly from child to child, if great care is not exercised in sterilizing the food and the feeding apparatus. The growth of the organism is favored by an abnormal acidity of the oral secretions, a debilitated condition of the system, and bad hygienic and sanitary surroundings.

The disease appears as small, white, elevated patches upon the inside of the lips, cheeks, sides of the tongue and just within the corners of the mouth. The mouth is dry and feverish, and the salivary secretion is scanty. After two or three days the patches assume a curdy or soft appearance. This curdy surface, the "thrush film," is easily peeled off and leaves a denuded surface, which bleeds easily. It is soon covered again, however, by a new growth of the parasitic organism. The denuded surface is exceedingly sensitive, and renders feeding very painful, so that it is with great difficulty that little children can take food.

The extension of the disease to the pharynx, œsophagus, tonsils,

hard palate and air passages, is not an uncommon course for it to pursue. The constitutional symptoms are elevation of temperature, disorders of the stomach and intestines, with vomiting and diarrhea. The excreta from the bowels are often greenish in color, mixed with curdy masses of milk, and are often exceedingly acid, causing excoriation of the anus, buttock, perineum, etc. The disease is sometimes seen in adults who have suffered from prolonged and wasting diseases like typhoid fever, tuberculosis, etc. In little children the disease sometimes terminates fatally from exhaustion and inanition.

Stomatitis Ulcerosa. This is a much more serious condition than any of the forms of stomatitis which have been mentioned, and is more often seen by the dental surgeon, for the reason that it most frequently occurs in children from 5 to 10 years of age, who are suffering from debility induced by disease, deficient food or unhealthy surroundings. It is occasionally seen in adults who have been debilitated from disease or debauchery. Local injuries and irritations from diseased teeth, and chronic poisoning by mercury, phosphorus, lead and copper (Ziegler), may also be causative factors in the production of the disease.

The disease is first manifest in the margins of the gums, usually in the anterior part of the mouth, by swelling, redness, loosening of the gums from around the necks of the teeth, accompanied by tenderness or pain. The loosened festoons and margins later become very much swollen and congested, partially covering the crowns of the teeth; finally they take on a purple hue, soften and slough away as yellow masses, leaving an irregular ulcerating surface. In the more serious cases progress of ulceration is rapid and often extends to the deeper tissues, involving the border of the alveolar process, which may become necrosed, resulting in the loss of considerable portions of bone and even of several teeth. The breath is fetid, the salivary secretions are increased and often mixed with pus and blood. The lymphatics often become swollen and tender. The cheeks and lips opposite the ulcerated portions of the gingivæ sometimes take on inflammatory conditions and ulceration, accompanied with considerable swelling. Food is taken with difficulty. The disease usually appears as an acute affection, but occasionally it becomes chronic and lasts for months, in which case it becomes troublesome to cure.—(Tomes.)

The constitutional symptoms in the milder cases which involve

only a limited area of ulceration, are slight febrile disturbance and loss of appetite, which last for a few days and subside upon the healing of ulcerations. In the more severe cases in which the ulceration is extensive, involving the periosteum and the bone, the temperature may run high and not subside for several days. The high fever is accompanied by thirst, loss of appetite and great restlessness. The disease sometimes resembles gangrenous stomatitis, or *gangrenea oris*.

With this brief resume of the history of the various forms of stomatitis which are generally recognized, and which I have introduced for the purpose of comparison, I desire to call your attention to another form of ulcerative stomatitis which sometimes follows injuries to the gums from extraction of teeth, abrasions from hard foods or the vigorous use of the tooth-brush, etc., and for which I propose the term *Stomatitis Ulcerosa Nocens*, or *Infectious Ulcerative Stomatitis*.

The clinical characteristics of this form of the disease are the formation of ulcers at some point of injury, which at first appear in nowise different from the ordinary form of a localized ulcerative stomatitis, but which after the lapse of twenty-four to forty-eight hours begin to spread rapidly along the margins of the gingivæ in all directions, involving both jaws and sometimes extending to the hard palate and the floor of the mouth. The margins of the gums assume a general ulcerative condition, accompanied by swelling, redness and considerable congestion of the parts, which bleed easily. Later they become covered with a dirty-white or yellowish-white pellicle or membrane—somewhat resembling the thrush film—which sloughs off after a day or two, destroying the festoons and leaving a ragged surface. The denuded surface is very red and covered with coarse granulations, which bleed upon the slightest provocation. The gums are loosened from the necks of the teeth and the borders of the alveolar processes are exposed. Pus mixed with blood exudes from the inflamed tissue about the necks of the teeth. The breath and excretions are very fetid, and salivation is profuse. In these respects the symptoms resemble mercurial ptyalism. The ulcerated surfaces are exceedingly sensitive, and motions of the tongue and lips on this account are very painful. Food is taken with difficulty. Accompanying the local manifestations there is a general febrile condition, temperature ranging from 100 to 101

degrees F., thirst, loss of appetite and general malaise, sleeplessness and irritability of temper.

In illustration of the above clinical features of the disease the following cases are introduced: *Case 1.* Mr. A., aged 21 years, clerk. This gentleman had an abscessed lower molar of the right side extracted, which had caused considerable swelling of the jaw. The gum tissue had been somewhat lacerated upon the lingual side in the effort to remove the offending root. Two days later he returned with the injured gum ulcerated, the ulceration spreading to the adjoining teeth. Antiseptics had been used to cleanse the mouth, the alveolus irrigated and dressed, and a listerine mouth-wash prescribed. The disease, however, spread so rapidly that in forty-eight hours the gums of the entire lower jaw were involved, and it had attacked the anterior portion of the upper jaw. This was the condition when the case first came under my notice. Diligent inquiry could not discover any constitutional conditions, like syphilis, mercurial or lead poisoning, etc., which would account for the presence of the disease. He had, however, recently been ill for a couple of weeks from a mild attack of la grippe.

Treatment consisted of first cleansing the mouth by irrigating it with a saturated solution of boric acid, followed by a 50 per cent solution of 12-volume hydrogen peroxid in water sprayed into the mouth and between the approximal spaces between the teeth. The mouth was again irrigated with boric acid solution, to remove all the debris and the foam caused by the use of the peroxid; after which the gums were carefully dried and protected with rolls of bibulous paper and the ulcerated surfaces swabbed with a 10 per cent solution of zinc chlorid.

The patient was furnished with a bulb atomizer, and instructed to spray the mouth every two hours with 25 per cent listerine solution. This line of treatment was followed every day for a week, except the application of the zinc chlorid, which did not seem necessary after the third day, as marked improvement took place from this date. The case was discharged cured at the end of ten days. The only constitutional treatment was a saline cathartic, which seemed to be indicated to relieve a tendency to constipation. The fact that local treatment alone, except that just indicated, was sufficient to control the case, precludes the possibility of syphilitic infection being the cause of the affection.

Case 2. A married man, aged 34 years. Patient states that he has been overworked of late, that his gums had been congested and bled when the teeth were brushed; and thinking that perhaps he had not been vigorous enough in the use of the tooth-brush, bought a new one that was quite hard and gave them a most thorough brushing before retiring. Next morning his mouth was so greatly inflamed that he could not use the tooth-brush or masticate his food, or even take a cup of hot coffee. For the next two days he tried to allay the inflammation with various soothing preparations, but in vain, so he presented for treatment.

Examination of the mouth revealed extensive ulceration of the margins of the gums of both jaws, with ulcerating streaks upon the roof of the mouth, extending from the region of the first molars on each side nearly to the median line, and looking as though they had been cauterized with silver nitrate. The ulcerations in all parts of the mouth were covered with the same dirty-white or yellowish-white film, and all of the other symptoms corresponding to those of Case I. In Case II, however, nearly every tooth in the mouth had a ring of salivary calculus encircling the cervix. This was no doubt the cause of the congested condition of the gums which induced the bleeding on brushing.

Treatment consisted of first cleansing the mouth, and then removing the salivary calculus. In all other respects the treatment was the same as in Case I. He made a rapid recovery, and was discharged at the end of two weeks.

Case III was almost identical with Case I. It originated from the same cause—the extraction of an abscessed lower molar, followed by ulceration of the gingival wound, and extension of the ulcerative process to the gingival borders of both jaws. In this case, which occurred in a young Jew 24 years of age, there was a clear history of syphilis; infection having taken place two years before. He had visited Hot Springs and taken a course of treatment, but had taken no mercury or iodid since his return four months before.

The treatment prescribed in the other cases was followed in this, with the exception that after the third day of treatment, in consultation with his family physician, he was placed upon the usual course of treatment with the iodids. He rapidly improved under the local treatment from the first, and at the end of ten days all of the local symptoms had disappeared. From this I think the infer-

ence may be safely drawn that the local disease was not the result of his syphilitic condition, as it is hardly to be supposed that the constitutional effect of the iodids would be manifested in so short a period, while at the same time it was evident that the case was improving before the iodids were administered.

Neither can the first or third cases be fairly attributed to infection from unclean instruments, as I am sure that the greatest care was observed in both cases to prevent such a contingency. The explanation would rather, it seems to me, be that of auto-infection from the pus microorganism of the alveolar abscess coming in contact with a freshly wounded surface of the gum, or from some of the other pathogenic organisms which so constantly inhabit the mouths of even cleanly persons.

The second case was also without doubt due to auto-infection from the last named causes, through the brushing and lacerating of the already inflamed gums, thus furnishing the only condition lacking before to establish an infectious inflammation which, by reason of the debilitated condition of the system, it was unable to successfully resist.

The acute character of the symptoms and the rapid spreading of the ulceration from the initial point of injury seems to prove the infectious nature of the disease.

* * *

RESORPTION OF THE ROOT OF A PERMANENT TOOTH. By Prof. Nessel, Prague, Austria. A few years ago a mechanic requested to have the first right lower molar extracted on account of prolonged pain which he had suffered. A considerable time previous, when he had a tooth filled, the impression of the mandible was taken, because it contained three premolars on the left side. On this impression the carious defect on the first right molar can be distinctly observed. After the completion of the extraction I missed the mesial root. I immediately grasped the root forceps, for from the probing it appeared that the root-remnant was present, and brought to light an entirely sound premolar. Astonished, I examined the jaw, but the two premolars were present. I therefore had removed the hidden supernumerary premolar, which had caused the resorption of the mesial root of the first molar. This preparation I lost in the course of time. A similar case came to my notice two and a half years ago.

A young lady of 15 had her first right upper molar filled with a cement-amalgam stopping. The carious cavity was of considerable depth, but it is certain that it did not reach to the pulp, as can be seen from the preparation. About a year after pains made themselves felt in the tooth, which pointed to periosteal irritation. The tooth exhibited distinct movability, and was sensitive under pressure. After about a fortnight's waiting, the tooth not having quieted down—at the express wish of the patient, because she could not well bear the drilling out of the amalgam filling—I extracted the tooth. Again the same case! I was minus the distal root; on searching with the probe, it seemed possible to reach the broken off root-remnant. With the forceps I removed a sound molar which fitted exactly into the defect caused by the resorption. The pulp of the resorbed tooth was completely intact; I satisfied myself of this in the sectioning. Some time ago it could be shown that the third molar made its appearance on this side. On the left no abnormality is to be observed. The first molar had already been extracted some time previously; the second molar displayed entirely the form of an in-grown tooth on the right. After the bleeding had stopped, it appeared as if there were present in the wound rags of tissue, but in the blood coagulum they could not be distinguished for certain; on the extracted tooth are remnants of the covering of the crown.

This case decides without doubt that the roots of permanent teeth can undergo resorption through the crowns of permanent teeth pressing against them. The process of resorption itself is hidden from us. It may be pointed out here that the resorption is probably brought about through a similar tissue, as happens in the case of milk teeth. The wrecks of the tissue would indicate this.

The point, however, upon which I would lay special stress is this, that the pulp of the molar remained intact; for the resorption of the roots of milk teeth takes place only where the pulp is still preserved. The roots of milk teeth, the pulp in which has been destroyed, are not resorbed, but are pushed aside by the permanent tooth, and the symptoms of resorption on such teeth date from the time when the pulp was still alive. I need not add that a conservative therapia in this case would have been without result.

The pains and seeming lengthening of the tooth were caused by the permanent tooth, and from this it can also be seen with what great force the teeth are driven out of the jaw when roots of per-

manent teeth are sooner brought to resorption than that they should be an impediment. Perhaps, also, the resorbing power of the tissue of resorption is so great that from mere contact with it, without any pressure being exercised by the permanent tooth, the resorption proceeds; or what is far more probable, both factors here come into action. The feeling of the lengthening of the tooth, which impeded the masticatory process, speaks in favor of the pressure of the permanent tooth. It is known that the crowns of teeth before eruption are inclosed in a cover of tissue, as one may easily convince oneself, and it is a question if this tissue enclosing the crown of a tooth is itself the organ of resorption.—*Wiener Zahn. Monats.*

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VULCANITE EMPLOYED AS INLAYS. By Dr. A. Schuer. Of late inlays have attracted the attention of the profession, and having given the matter some thought I recommend that the inlay be made of vulcanite, which can be readily produced, is less costly, and its appearance when in the finished work is excellent. The shade is dark gray and approximates the natural teeth. The cavity is prepared in the usual manner, cutting down all undercuts, an impression made off it, and the white or gray rubber is packed into the plaster mold and the case vulcanized. Before taking the impression, I have found it good practice to swab the cavity with vaselin and then take the impression with moldable wax. Polish the vulcanite and prepare it for insertion. The inlay can be cemented into position, or the margins may be packed with gold or platinum foil; the latter may also be used as the matrix, insuring a perfect fit when the vulcanite is ready for the cavity. In contour fillings it may not be so practical as for occlusal surfaces or on the labial surfaces of the anterior teeth.—*Trans. for Dental Digest by Dr. B. J. Cigrand, from Sch. Vier. für Zahn. July, 1899.*

AN EXHIBITION OF EYES.—In the museum at Stockholm there is a very interesting collection of eyes, taken from human beings at different ages. They are cut across in such a way as to exhibit plainly the internal and the external eye. In looking at these specimens it is easy to observe that the eye of the young child is as transparent as water; that of the youth is a little less so; in the man of thirty the eye begins to be slightly opaque; at fifty or sixty it is decidedly opaque, and at seventy or eighty it is dull and lustreless. This gradual development of opacity is due to the increase of fibrous tissue and the deposit of waste matters in the eye.—*Good Health.*

Letters.

NEW YORK LETTER.

NEW YORK, Sept. 23, 1899.

To the Editor of The Digest,

MR. EDITOR:—New York is enjoying perfect soft weather, and altogether we have had an exceedingly comfortable summer. There was no need to go away for comfort, but man is such a restless creature that he always wishes something different. Dentists, of all people, need a change. It is not overstating it to say that our vocation is one of peculiar vexations and trials, and these of a kind which greatly tax us. A dentist's energies and ability are called upon in so many directions, that he should take a rest at intervals during the year. This would not only prolong his life, but would make him more fit to render good service to his patrons. Dentists as a rule do not take enough relaxation and especially exercise. If they would get out more in the open air they would be happier and broader-minded men.

This is an age of invention for enjoyment and especially for out-door exercise. Bicycling was taken up by a host of people, and while it is still very popular, golf seems to be growing in favor.

Whitney Lyon, son of one of our former dental practitioners, Dr. I. W. Lyon, who made a success of the tooth-powder enterprise, is the president of the first automobile club of New York City. Every dentist cannot afford one of these new vehicles, but from present indications the price will soon be within the reach of all. The world is going at a swift pace, and while perhaps not one that kills, it is certainly bewildering.

We are not built (mentally) to ride a bicycle and so have confined our enjoyment to the rod and fly. Our yearly outings at Rangeley Lake, Me., in the midst of pure air and beautiful scenery, have certainly prolonged our life.

It has been our privilege to look over Dr. Talbot's latest book—"Interstitial Gingivitis." We have often said before, and would repeat it now, that whatever we may have taken for truth according to the light of the present, may all have to be let go in the face of advanced truth; but this is not a case in point. We certainly think that Dr. Talbot has misnamed his book. According to his own

teaching the title can not be truthful. Anyone who is familiar with the disorder under consideration knows that there are phases that have no place in such classification. We do not hesitate to say that the plane upon which the Doctor's line of investigations have been carried on are without value. We are sorry that oversight or mental misconception should have led a writer so able along other lines to go astray. We would ask, can it be possible for anyone to conceive that out of conditions and environments so distinctly at variance with each other there could be formulated a theory that would stand investigation or proof? The disorder is directly due to functional disturbances produced upon the sympathetic nervous system. Does it require a very astute brain to imagine the vast contrast of effect between the two orders of the animal kingdom? It would seem that would-be science has gone wide of its mark in search of the truth concerning such a complicated disorder. We are sure that "Irregularities" have possessed a fertile brain and we fear that "Degeneration" has set in. We wish to state, however, that this last effort in no way mars what the Doctor has so well done in other directions. Shoemaker, "stick to your last."

Dr. E. A. Bogue is again at his Paris office, and will remain there until December.

We held a curbstone convention with another dentist recently, and learned some facts concerning radical dealing with cataphoresis as against conservative management. It is sad that a patient should be led through untold suffering and finally be left in a marred condition for life, because of a lack of ability on the part of the operator, and furthermore, at a cost of over $14,000 We are not peddling fanciful sensational gossip, and this report can be verified. This emphasizes more and more the warning to go slow.

Everywhere we hear men asking with bated breath, "What do you think of the turn of affairs with the "Crown Company?" We say to all, there is but one safe refuge—the Protective Association. If men can not see this now they had better be left to themselves—the Crown Company will be company for them.

New York is all in a buzz between Dewey and the yacht race. Dr. L. N. Seymour of London came over with Sir Thomas Lipton, the owner of the Shamrock. We should say that Lipton has an ambition to secure a big cup for his tea. Dr. Seymour is his dentist, and tells us that he is frequently the recipient of a gift of choice tea. We

have had some "G. Ps." (grateful patients) ourselves. One woman sent us a nice, hand-made, ten-pound ball of fresh butter once for services, and another one gave us $3 in dimes in one of these ten cent banks as pay for a set of teeth. If every one viewed his vocation as we do there would be less grumbling, for we never saw the time when we could wish ourselves anything but a dentist. Dentistry offers to those who are fit a field of great promise and remuneration.

Cordially, NEW YORK.

BALTIMORE LETTER.

Dear Digest: BALTIMORE, Sept. 18, 1899.

Your letter requesting some "spice" for the journal arrives at a very inopportune time, and finds me very much in the position of the North Carolinian who during the war was asked for a chew of tobacco, and replied that he had "some first-rate rosin which he was usin'." Now spice does not grow wild in these diggins, and it has been so very dry this month that it would scarcely grow tame. I have, however, some ginseng and other mountain roots which are frequently substituted. These I send, though you must not expect to find them as good as the real thing.

I am impressed with the fact that something is always happening, though it may not happen to us. Now there is my friend Catching, for instance—he of the Atlanta *Dental Weekly* fame—has gone to writing poetry; witness the lyric in the *Ohio Journal!* I was never more surprised; almost as much shocked as the fellow who saw a gaudily-colored parrot perched on his roof and determined to capture it. Securing a net he approached cautiously, but when he got too near Polly said: "What the devil do you want?" The would-be captor stammered out: "I beg your pardon sir; I thought you were a bird!" So the many things we had thought about the Doctor are completely upset. No wonder he did not get to the National.

Now poetry, Mr. Editor, is somewhat like dynamite, there are certain fixed rules for handling it, and those who do not adhere strictly to these conditions are not allowed to touch it. I will not give you the rules for dynamite (we may need them when the Doctor gets back at me!), but these are the rules for poetry: First, it must be composed of words, and these must be written in blocks, so as to have them come out about even at the end of the line;

finally, there must be a sort of sleigh-bell jingle about it. These rules the Doctor has obeyed strictly; the slightly sibilant sound in one or two of the verses may be readily accounted for by the fact that the author is rather corpulent, and is not supposed to be trained down to the very finest point. We suggest a yarn muffler about the neck when exercising!

Seriously, we are very glad of this new cropping out of our friend's accomplishments; we like to see a well rounded man, especially if that man is a dentist. Then, too, it sets an example which may stand in good stead even in this letter.

As correspondent of the DIGEST, we are more or less interested in journalism; it was therefore with some surprise and not a little interest that we note the words of the editor of the *Indiana Dental Journal.* He claims to publish about the only independent dental journal in the United States. True, he accords to Editor Beers, of the *Dominion Dental Journal,* of Canada, the same high standing. Why not start a hatchery out there in Indiana? We might use a setting of eggs here in Maryland, and there are surely others:

Oh, here's to Indiana!
The fertility of whose soil
Breeds independent journalism,
Makes the editor's pot to boil.

And here's to that same editor,
As nice as he can be,
When you ask for independence,
He says, "Why, that is me!"

And here's to Independence,
For her we still will fight;
If you want to know the reason,
You bet your boots it's right!

And here's to Cousin Jonathan,
Who still lays claim to seers,
And if you want to beat him,
You'll have to bring *two* Beers!

And here's to the spirit of fairness,
Feeling bigger than our brothers
Let's call to mind the slang phrase,
"Remember there are others!"

Now please have this set up as poetry, according to the above rules; it may not be quite up to the standard of our friend with the contagious name, but we can safely say that we took the disease from him! We hope to survive it, but are not so sanguine as to you and the others who try to read it.

The echoes of the National meeting bring us pabulum for thought. In general the comments have been in most complimentary vein; the few criticisms we think can be successfully answered, especially when we remember that they are offered in no unfriendly spirit. We believe that what at first seemed unfortunate will really be a benefit, viz., the plethora of papers. Those which could not be read for lack of time will be presented to the various state and local societies, and this will result in a higher order of papers than is usually given before these associations. We assume that every one will put his best foot foremost in working for the National.

Again, any one engaged in scientific or professional work should certainly be above pique or resentment for an accidental or unavoidable slight. Zeal in a good cause is a thing to be regulated, but never condemned, even though the millennium be hurried up a little by its exercise.

The section officers have not assumed in the fullest sense their responsibility, but they must be expected to do this gradually, and they will. We will get to look to them for the program, and this will grow in time to consist of finished papers by the very ablest men who can be secured.

We hope to see the officers nominated, if not elected, by the council. Thus the business of the association will be so distributed that we can expect a more harmonious and even performance than by the old plan. Most of this was presaged or pointed out in the meeting, and on the whole that meeting will seem, as we see it more and more, a record breaker. We must not go backwards, so get to work.

We have every prospect of a good quarterly meeting of our state society, October 26; an afternoon of clinics and demonstrations, and an evening of papers and reports of cases. We have lots of youngsters here who are capable, and there is a disposition to put them to work. Our president is enthusiastic and out for a record; we would like to see him make it.

The friends of Dr. W. S. Twilley, who left Baltimore some time

ago to die, as many supposed, in the western mountains, will be glad to know that he visited his old home this summer, and seemed in as good health as in his palmiest days. The Doctor is in Colorado, and claims to be able to climb the highest hills in that section. He is enjoying a good practice, but of course would like to come home. There is nothing like climate. An old lady who had spent her life in the state of North Carolina, near the Virginia line, when informed that by a recent survey her home was in Virginia, replied that she was very glad of it, as she had always heard that the climate of Virginia was better than that of North Carolina! Long may she live to enjoy it.

Best wishes to you too, Mr. Editor! Sincerely, ORIOLE.

RAILWAY ACCIDENTS.—The government report on railway accidents for the year is an interesting document. The total number of casualties during the year ending June 30, 1899, was 47,741. The aggregate number of persons killed as a result of railway accidents during the year was 6,859, and the number injured was 40,882.

The casualties from coupling and uncoupling cars are assigned as follows: Trainmen killed 182, injured 5,290; switchmen, flagmen and watchmen killed 90, injured 1,486; other employes killed 7, injured 212. The casualties resulting from falling from trains and engines are assigned as follows: Trainmen killed 356, injured 2,979; switchmen, flagmen and watchmen killed 50, injured 359; other employes killed 67, injured 521. The casualties to the same three groups of employes caused by collisions and derailments were as follows: Trainmen killed 262, injured 1,367; switchmen, flagmen and watchmen killed 13, injured 69; other employes killed 38, injured 267.

The number of passengers killed during the year was 221, and the number injured was 2,945. Corresponding figures for the previous year were 222 killed and 2,795 injured. In consequence of collisions and derailments 72 passengers were killed and 1,134 passengers were injured during the year embraced by this report. The total number of persons other than employes and passengers killed was 4,680; injured 6,176. These figures include casualties to persons classed as trespassers, of whom 4,063 were killed and 4,749 were injured. The summaries containing the ratio of casualties show that one out of every 447 employes was killed, and one out of every 28 employes was injured. With reference to trainmen—including in the term enginemen, firemen, conductors, and other trainmen—it is shown that one was killed for every 150 employed, and one was injured for every 11 employed. One passenger was killed for every 2,267,270 carried, and one injured for every 170,141 carried. Ratios based upon the number of miles traveled, however, show that 60,542,670 passenger-miles were accomplished for each passenger killed, and 4,543,270 passenger-miles accomplished for each passenger injured.—*Medical Age.*

The Dental Digest.

PUBLISHED THE TWENTIETH DAY OF EVERY MONTH
At 2231 Prairie Avenue, Chicago,
Where All Communications Should be Addressed.

Editorial.

THE ETHICS OF JOURNALISM.

The first duty of a journal is to its readers. Without the confidence and respect of a large clientage of subscribers it is powerless for good. Even as an advertising medium a paper is valueless if it does not possess readers who have confidence in the honesty and integrity of the editor.

The dental profession is passing through a crisis at the present time. The Crown Co. in attempting, unjustifiably as we believe, to levy tribute upon every dentist, has brought about a serious condition, and yet the organs are silent. How dare dental publications depending upon the good will of the profession for their livelihood remain passive at this important juncture? Either the Crown Co. is right and every dentist should be made to pay, or it is wrong, and every friend of the profession should be "up in arms and eager for the fray." Silence, as has been said of patriotism, may sometimes be "the last refuge of a coward."

"SOME INSIDE FIGURES."

Trusts are usually secretive. They shun the light of publicity and prefer to work in dark and devious ways. At the trust conference recently held in Chicago, under the auspices of the Civic Federation, while all phases of the evil were discussed, there seemed to be a general belief that complete publicity of accounts, operations and methods, enforced by government inspection and supervision, would make these mammoth combinations powerless to plunder the public. It may be that the managers of the dental trust are becoming alarmed at the spread of anti-trust sentiment and have shrewdly decided that a voluntary exposition of the affairs of the company, carefully drawn up from the inside, would be better than an enforced showing made by a public official from the outside. However this may be, we notice that all the dental jour-

nals controlled by the trust contain an alleged statement of the affairs of the S. S. White Dental Manufacturing Company. The company purports to give "some inside figures" regarding its operations, but after reading the statement we fail to find any facts of value to the profession. The "inside figures" are merely an egotistical boast of bigness, and are more remarkable for what they conceal than for what they express. The reader is informed how many million teeth are carried in stock, the number of employes on the pay-rolls, and is expected to contemplate with awe the elephantine proportions of the combine.

We are of the opinion that every dentist who is a purchaser of supplies would be better and safer in the practice of his profession if the manufacture and sale of these articles were not so nearly controlled by one large concern. We quote from the circular as follows:

"If the company should retire from business, or turn its attention to other branches of manufacture, there would be a great void in the dental supply business that it would take years to fill. It has taken two generations of hard, faithful work to place the house where it stands to-day, and for all that are in the business outside, it would probably require at least another generation to fill the gap and to supply the profession as well and as completely as it is supplied by us to-day."

Is this a veiled threat, or merely a piece of rhetorical bombast? Does the trust wish the dentists of the United States to understand that they are absolutely dependent upon a single corporation for the supplies necessary to carry on the great work of the profession? Stripped of its verbiage this paragraph means: "We've got you where we want you. You can't get along without us. What are you going to do about it?"

The claims of the dental octopus are of course greatly exaggerated. It is almost impossible to destroy competition and no dentist needs to be informed that he can, if he so desires, obtain anything in the form of supplies in any quantity at short notice from a concern that is not only outside the combination breastworks, but is distinctly and defiantly opposed to trust methods.

To calm the perturbed bosom of any dentist who may have become alarmed lest the S. S. White Co. may suddenly stop, bringing the entire profession to immediate chaos, we have been requested by the directors of the Dental Protective Supply Co. to state that they are prepared to give a bond of $5,000,000, in the event of the with-

drawal of the trust, that ample supplies will be forthcoming. If the combination should abandon the field the only loss would fall upon its salaried officers and the army of trust beneficiaries in all parts of the country. The profession at large would welcome an era of free competition in dental supplies—an era in which merit would win and honorable methods would prevail, but there is not the slightest danger of the big combine voluntarily going out of existence. It may die a violent death, but it will never resign.

It is well enough to parade figures showing the magnitude of operations and the amount of business done, but some data describing how this immense traffic was built up would be more acceptable. We are not told how many competitors have been crushed, how many inventions have been suppressed, or how many educators and editors have been subsidized. While giving its "inside figures" the trust should have explained how it has sought to create a monopoly by mythical patents that will not stand examination. Patents of minor importance are paraded as vital and the combination seeks to coerce where it has not the legitimate power to control. Statistics upon these points would be of absorbing interest to the profession.

Several paragraphs of the trust circular are unworthy of serious consideration, but we cannot refrain from alluding to this sentence: "We are not Ishmaelites, and have not been warring upon anybody or pulling wires for position." Think of it, the managers of the dental trust have never done any wire-pulling. They have never subsidized prominent men, terrorized patentees, fed trust pap to the editors of dental journals, or indeed done any of the devious and unexplainable things that other trusts are so frequently charged with. An honest trust is the most remarkable creation of modern times.

Notices.

NORTHERN IOWA DENTAL ASSOCIATION.

This organization held the most successful meeting in its history at Charles City, Ia., Sept. 5–7, 1899. Over one hundred dentists were present and thirty-six new members had been added during the year. The next meeting will be held in 1900 at McGregor. Officers elected for the ensuing year are: President, G. H. Belding; Vice-President, W. R. Clack; Secretary, R. S. Huntley; Treasurer, W. T. Knapp.

SOUTHWESTERN MICHIGAN DENTAL ASSOCIATION.

After a very successful meeting held at South Haven, Mich., Sept. 12–13, 1899, the following officers were elected for the ensuing year: President, A. C. Runyan; Vice-President, N. E. Harper; Secretary, E. A. Honey; Treasurer, C. E. Burchfield. The next meeting will be held at Decatur.

LATEST DENTAL PATENTS.

31,494. Design, dental elevator, Xaver Dodel, San Francisco.
631,228. Disinfectant, Robert H. Reeves, London, England.
631,429. Artificial tooth, James Neil, Jr., assignor of one-third to J. Neil, New York.
632,524 Toothbrush, Ada V. Goltermann, East Orange, N. J.
33,356. Trade mark—Dentifrices, Charles A. Kirkwood, Chicago.
33,393. Tooth-powder, Benjamin H. Codman, Boston.
7,118. Labels—"Kreso-Napthol," for a disinfectant, Eugene S. Latta, Cleveland.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, solicitor of patents, Fendall building, Washington, D. C.

MASSACHUSETTS BOARD OF REGISTRATION IN DENTISTRY.

A meeting of the Massachusetts Board of Registration in Dentistry, for the examination of candidates, will be held in Boston, Monday, November 13, 1899, at 9:30 a. m., at Harvard Dental Infirmary, North Grove street. Examination in operative dentistry at 10:30 o'clock. Each candidate must come prepared with rubber-dam, gold and instruments, to demonstrate his skill. Any one who wishes may bring his patient. So far as possible patients will be furnished.

The theoretic examination will include Operative Dentistry, Prosthetic Dentistry, Crown and Bridge Work. Orthodontia, Anatomy, Histology, Surgery, Pathology, Materia Medica, Therapeutics, Physiology and Anesthesia, and will be held at Civil Service Rooms, State House, commencing Tuesday, November 14, at 9:30 o'clock.

All applications, together with the fee of $20, must be filed with the secretary of the board on or before November 6, as no application for this meeting will be received after that date. Candidates who have taken an examination and desire to come before the board again at this meeting must notify the secretary as above in order to be registered.

G. E. MITCHELL, Sec'y, 25 Merrimack street, Haverhill, Mass.

UNION MEETING SEVENTH AND EIGHTH DISTRICT DENTAL SOCIETIES, STATE OF NEW YORK.

The thirty-second union meeting of the above societies will be held in the assembly-room of the New Osburn House, Rochester, Tuesday–Thursday, October 24–26, 1899:

Preliminary Announcements. I. Comments, Dr. J. H. Beebee, Rochester. II. Subject to be announced, Dr. J. Wright Beach, Buffalo. III. Cosmetic

Dentistry, Prof. Chas. H. Ward, Rochester. IV. Subject to be announced, Dr. W. A. Barrows, Buffalo. V. Treatment of Fractures of Lower Maxilla. Dr. Frank Greene, Geneva. VI. Subject to be announced, Dr. S. E. McDougall, Buffalo. VII. Anesthetics in Dental Practice, Dr. J. F. Knapp, Geneva. VIII. Subject to be announced, Dr. Preston, Buffalo. IX. The Use and Limitations of Formaldehyd in Dentistry, Dr. F. W. Low, Buffalo. X. Subject to be announced, Dr. R. H. Hofheinz, Rochester. XI. The Embryological Development of the Dental Tissues, Dr. W. C. Barrett, Buffalo. XII. Subject to be announced, Dr. Leroy Requa, Rochester. XIII. Articulation, Dr. Geo. B. Snow, Buffalo. XIV. Subject to be announced, Dr. W. H. Povall, Mt. Morris. XV. Subject to be announced, Dr. C. H. Nicholson, Rochester.

The committee have also under arrangement other important additions. There will be clinics in abundance, together with a complete dental exhibit. The committee are making strenuous efforts to make this one of the best union meetings ever held by the society and well worthy of your attendance Members of the profession are cordially invited. WM. W. BELCHER,

Chairman, 827 Granite Bldg., Rochester.

INTERNATIONAL DENTAL CONGRESS, TO BE HELD AT PARIS, FRANCE, AUG. 8-14, 1900.

The committee appointed by the National Dental Association at the Omaha meeting, August 30, 1898, was by order of the chairman, Dr. A. W. Harlan, convened at the Cataract House, Niagara Falls, August 1, 1899. No quorum being present, was adjourned to the 3d inst., at 4 p. m.

There were then present A. W. Harlan, of Chicago; H. A. Smith, Cincinnati; Thomas Fillebrown, Boston; T. E. Weeks, Minneapolis; J. D. Patterson, Kansas City; H. W. Morgan, Nashville; T. W. Brophy, Chicago; W. C. Barrett, Buffalo; W. W Walker, New York City; W. E. Griswold, Denver; B. Holly Smith, Baltimore; J. Taft, Cincinnati.

The meeting was called to order by the chairman, who gave a short address stating the object, organization, etc., of the congress, and the work necessary for the committee to accomplish in this country.

On motion of Dr. Weeks, W. E. Griswold was elected secretary.

On motion of Dr. Fillebrown, Dr. Wm. Jarvie, of Brooklyn, was elected an additional member of the committee.

On motion of Dr. Smith, the chairman and secretary were instructed to confer with the National Association in regard to arranging an earlier meeting next year to accommodate those going abroad.

On motion of Dr. Weeks, H. S. Sutphen, of Newark, N. J., was made a member of this committee.

On motion of Dr. Barrett, a place on this committee was reserved for the president of the National Association in the year 1900, and the chairman was authorized to insert his name.

On motion of Dr. Brophy, George H. Chance of Portland, Ore., was made a member of this committee.

On motion of Dr. Barrett, a resolution requesting any member of this committee finding himself unable to go abroad to attend this congress, shall at once resign, and that the executive committee be empowered to fill the vacancy, was passed.

On motion of Dr. Smith, the chairman was requested to appoint a transportation committee composed of Drs. Jarvie, Walker, Harlan and Griswold.

On motion, a committee consisting of Drs. Brophy, Weeks and Morgan was appointed to take charge of the exhibit of American Educational Methods.

On motion, an executive committee of five was appointed, consisting of Drs. Harlan, chairman; Barrett, Brophy, Kirk and Smith.

On motion, the executive committee was empowered to fill vacancies in this committee.

On motion, adjourned to meet at call of chairman.

W. E. GRISWOLD, Sec'y, 423 Mack Block, Denver.

News Summary.

S. P. YULE, a dentist of Clinton, Ia., died suddenly Sept. 22, 1899.

E. E. STRONG, a well-known dentist of Cleveland, died Sept. 12, 1899

JOHN T. RUGH, 22 years old, died of appendicitis at Johnstown, August 22, 1899.

LONG-LIVED.—The Jewish is said to be the longest lived of any race in existence.

WM. N. AMMER, the oldest dentist of Lancaster, Pa., died Sept. 20, at the age of 65 years.

ROBERT S. ANDERSON, 27 years old, a dentist of Washington, Pa., died of typhoid fever Sept. 7, 1899:

GEO. H. COOK, a well-known dentist of Toronto, Canada, 36 years old, was drowned Aug. 26, 1899.

EDUCATIONAL ITEM.—You should hunt up a dental college if you want to hear a first-class college yell.

GEO. F. EMERSON, 55 years old, a dentist of Boston, was drowned while fishing in Maine, Sept. 7, 1899.

WM. F. TROUT, a dentist of McConnellsburg, Pa., aged 66 years, died after amputation of a leg, Sept. 7, 1899.

SAMUEL HOWE, formerly a well-known dentist of Minneapolis, died of consumption Aug. 25, 1899, at the age of 48 years.

HARRY M. EVANS, a dentist of Philadelphia, died Sept. 7, 1899. He was 33 years of age, and prominent in masonic circles.

PRESS TOPICS.—Electricians supply us with current topics of the day, and the physicians with the news of the weak.—*N. Y. Lancet.*

E. S. HOLMES, 80 years old, a well-known dentist of Grand Rapids, Mich. is very ill and his physicians believe he will live for a few days only.

VIOLATED STATE LAW.—According to the Grand Rapids (Mich.) *Herald*, A. Frank Griswold, an itinerant dentist, was fined $25 for violating the state laws.

SCHOOL DENTIST.—The school board of Louisville has recommended the appointment of a dentist to inspect and care for the decayed teeth of the poorer children.

NEW YORK MEDICAL JOURNAL, in an editorial Aug. 26, 1899, pays a high compliment to the American dentist of the present day, and states that he is "most assuredly in the advance guard of scientific progress."

TWIN CITY DENTAL ASSOCIATION.—This organization held its first meeting Sept. 20. The following officers were elected: President, S. B. Ellsworth; Vice-President, E. A. Honey; Secretary and Treasurer, Dr. Enders.

LASTING ANESTHESIA can be produced by spraying chlorid of ethyl over a surface previously moistened with a concentrated watery solution of cocain. Cocainized chlorid of ethyl has been employed for opening abscesses, etc.—*Bardet in Med. Record.*

SAGINAW VALLEY DENTAL ASSOCIATION.—The annual meeting of this organization was held Sept. 2, 1899, and the following officers were elected for the ensuing year: President, T. E. Howson; Vice-President, M. T. Watson; Secretary, C. P. Stone; Treasurer, E. B. Slawson.

DISLOCATIONS.—In dislocation of one side of the jaw the chin is deflected away from the dislocated side. In bilateral dislocation the chin is advanced forwards. In the former the face is distorted, while in the latter there is a peculiar expression of fear and distress.—*Int. Jour. of Surg.*

GRIM.—All down the Strand the conductor, at intervals of a few yards, dangled his watch-chain before the driver of the bus behind him. "Why do I do that?" he said in reply to a passenger. "Oh, it's only a little joke between me and Bill; his father was hanged."—*Dublin Independent.*

SIMPLE TEST FOR GOOD PLASTER.—The quality of plaster may be tested by simply squeezing it with the hand. If it coheres slightly and keeps in position after the hand has been gently opened it is good; but if it falls to pieces immediately it has been injured.—*Australian Journal of Dentistry.*

A SMALL BABY.—It is reported that the Graz Hospital, in New Haven, Conn., has in its custody a girl baby, a week and a half old, and weighing three pounds. She is about ten inches long. At birth she was put into a hastily improvised incubator, and has been thriving ever since.—*Med. Record.*

TOOTH IN HER NOSE.—A laryngologist of Cincinnati, while operating on a woman for catarrh, tried to drill through what he thought to be a bone high up in the nose. Upon examination however it turned out to be a tooth which had grown there. After extraction the pain and catarrh left the patient.

CANDY INVESTIGATION.—An analysis was recently made by the board of health of nearly two thousand samples of candy of all kinds, purchased at different stores in this city, but chiefly from street stands and little shops in

the vicinity of the public schools. According to the report, none of the samples submitted contained any insoluble or harmful materials. The chief ingredients of the cheaper grades of candy were found to be starch, sweet gum and glucose.—*Med. Record.*

STRONG.—Some years ago Mark Twain's home in Hartford was invaded by scarlet fever, all of his children being stricken with the pestilence. Mark Twain described the disinfection that followed by saying: "We had a fumigator so strong that it took all the brass off the doorknob and all the tune out of the piano."

ALL'S WELL THAT ENDS WELL.—Aunt Geehaw (of Hay Corners): Did the story you were just readin' in the newspapers end happily, Joshua?

Uncle Geehaw (approvingly): Gosh! Yes; the beautiful heroine got cured of an incurable disease, an' it tells the name an' price of the pills that did the trick!—*Puck.*

CEMENTED JAWS TOGETHER TO HEAL FRACTURE.—A prizefighter of Brooklyn broke his wife's jaw, and Dr. Brewster has tried the novel experiment of cementing the jaws tightly together until the fracture heals and the bones knit. The woman is fed through an aperture in the side of her jaw where some teeth have been broken.

ILLINOIS VS. WISCONSIN.—Under date of Sept. 16, 1899, the Illinois State Board of Dental Examiners has refused to recognize the diplomas of the Milwaukee Dental College, or to permit the graduates to practice dentistry in this state without examination. The faculty of the college, as well as the Wisconsin state board, regard the act as merely retaliatory.

ACUTE DIAGNOSTICIANS.—At the time the cholera was so bad in Prague, Dr. S—— was called out of a warehouse suddenly to see a patient. At the time he entered the sick-room the family physician did the same. The two doctors found their patient in a strong perspiration, and both put their hands under the bedclothes to feel his pulse, but by accident got hold of each other's. "He has the cholera," cried Dr. S——. "No such thing," said the other, "he's only drunk!"—*Doctor's Factotum.*

DENTIST HELD HIM FOR PAYMENT.—An insurance agent of New York is held in the county jail at Wheeling, W. Va., on a novel proceeding. Dr. J. W. Storer charges him with securing $90 worth of gold, which the dentist placed in Justin's mouth, by false pretenses. When he attempted to secure a writ of habeas corpus, on the ground that he was not able to pay the debt, he was charged with obtaining goods by false pretenses. If this charge is sustained he will be in considerable trouble, as it is a penitentiary offense.

SO SAY WE ALL.—A Mississippi editor makes this appeal to delinquent subscribers: "Fish down in your pocket and dig up dust, the editor is hungry and the paper 'bout to bust. We've trusted you for several months, and did it with a smile, so just return the compliment and trust us for a while. Our wife she needs some stockings and baby needs a dress; Jimmy needs some breeches, and so does Kate and Bess. Pud is on the hog train and Peggy sick with grief, and good gosh almighty, can't you give a man relief. Shell

out those nickels and turn loose the dimes, turn 'em loose and whistle and we'll have better times; there will be fewer patches on the bosom of our pants and we'd make the paper better if we had half a chance. Don't give us that old story, long gone to seed, 'bout taking more family papers than the family want to read; but help to feed the printer, and he'll help our town to grow, and thus escape the sulphur in the regions down below."

ARTERIAL TENSION UNDER ANESTHETICS.—Dr. Broadbent writes to the *British Medical Journal:* "In the recent discussion at the Society of Anesthetists reference was made to the vascular tension under various anesthetics. Dr. Macphail, having to give gas and oxygen for a preliminary examination, and a few days later chloroform to the same patient for an operation, asked me to take pulse tracings of the case. As seen by them the patient's normal vascular condition was one of high tension. The gas and oxygen lowered this tension, apparently by dilating the peripheral vessels, since the artery of the wrist became much larger; while chloroform had no effect at all upon the arterial tension. The pulse under the gas and oxygen, owing to the enlarged artery, was more easily felt at the wrist than normally or under the chloroform. This lowering of peripheral resistance by dilating vessels should do good by preserving the heart from strain, but I should think would tend to increase the bleeding during an operation."

NUTRITIVE QUALITIES OF ALCOHOL.—The *Sanitarian* for July says that at a meeting of the Middletown (Conn.) Scientific Association on June 13, Professor W. O. Atwater, of Wesleyan University, reported the results of the experiments upon the nutritive effects of alcohol, lately carried out under his direction, upon a man in the respiration calorimeter. Pure alcohol was administered with water or coffee. The alcohol was taken with an ordinary diet of meat, bread, butter, milk, sugar, and the like. The amount per diem was equal to about two ounces and a half of absolute alcohol, about as much as would be contained in five or six ounces or three average glasses of whisky. Three important results were observed: First, the alcohol was oxidized—i. e., burned as completely as bread, meat, or any other food. Second, in this process all the potential energy of the alcohol was transformed into heat and muscular power. In other words the body made the same use of the energy of the alcohol as of that of sugar, starch, and other ordinary food materials. Third, the alcohol protected the material of the body from consumption just as effectively as the corresponding amounts of sugar and starch. That is to say, whether the body was at rest or at work, it held its own just as well with the one as with the other.

CHRISTIAN (?) SCIENCE (? ?).—The following verses are from the *Chicago Living Church:*

Oh, "God is so good,"
If we sit down and brood
On the goodness and "Allness," within and without us,
We need have no fear,
Our crackers and beer
Will flow from the "Allness" and goodness about us.

Of course, "there's no evil"—
God's not so uncivil
To make us imperfect and send us to thunder.
"There's nothing but love"—
In the heavens above,
The pockets of men, and the hearts that beat under.

"There can be no trouble"—
The body's a bubble—
It's all a "mistaken belief" and a dreaming.
God made us to fool us,
'Till some one should school us
To see what we see to be only a seeming.

"We're nothing but spirit"—
We really don't hear it,
Or see it, or taste it, or smell it, or feel it.
"There is no sensation"—
Except the temptation—
To think what we think, when we think we can't heal it.

'Tis quite a mistaken
Idea we have taken,
That there's but one method of race propagation.
A child now to bother
About who's his father
Shows stubborn contempt for the new revelation.

"There's nothing but mind"—
Though created so blind,
We're all of us nursing some little "delusion";
But friends by the score
(For a dollar or more),
Will kindly remove the distressing "illusion."

With best of intention,
The Lord failed to mention—
While healing the halt and the deaf and the blind—
The trick of his healing
Was simply revealing
A "mortal deception" of "immortal mind."

And that these signs and wonders
Arose from the blunders
The Father has made in creating mankind;
And, until he was ready
To send Mrs. Eddy,
The world must remain to his purpose blind.

PREVENTIVE ACTION OF CHLOROFORM WATER AGAINST POST-ANESTHETIC ACCIDENTS.—M. Weber (*Journal des praticiens*, May 6), as a consequence of observations on a patient, who had been submitted to chloroform medication by internal administration, and who was subsequently submitted to operation, recommends that for some weeks a patient to be operated on should, if possible, be placed upon the following mixture:

℞ Chloroform water ..... 3,000 grains;
Tincture of badian (*Illicium anisatum*) or essence of mint,
Tincture of anise, } of each ..... 4 drops.

M. Filter after twelve hours.

Subsequent to his first accidental observation, M. Weber has experimented upon many patients and finds that this treatment, when practicable, prevents the supervention of the unpleasant accidents attendant ordinarily on the administration of chloroform.

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which find lodgement in the interstices of the teeth and in the tooth structure, form a most suitable pabulum and very secure habitation for bacteria; consequently, the Dental Profession has subjected to very careful test the various antiseptic and disinfectant agents known to science, with the object of ascertaining their exact inhibitory or germicidal value, and their general adaptability to the practice of dentistry. In the researches by Professor Miller, of the Royal University of Berlin, to determine the most available antiseptic for the prophylactic treatment of the oral cavity, and for the preservation of the teeth, the action of Listerine was particularly noteworthy for the rapidity with which it acted upon the fungi of the mouth, and it was clearly demonstrated to be one of the most powerful, and the safest of the available antiseptic solutions.

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To prescribe as a detergent prophylactic mouth wash.
To cleanse and deodorize before operating.
To wash and purify the mouth after extracting.

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"The Mouth is a Typical

incubating chamber for the culture of almost all germs," says T. C. Van Kirk, D.D.S., in a recent paper. "The mouth of the patient may be rendered practically sterile by the use of some one of the many good antiseptics that are now available. Of these **BOROLYPTOL** is coming into popular favor. A small quantity held in the mouth for a few minutes arrests the growth of the microörganisms. Tubes of agar agar planted with saliva from the mouth, after exposure to Borolyptol, show no growth after forty-eight hours incubation, while tubes inoculated from the same mouth before the application just stated gave abundant growth; thus showing that Borolyptol has at least the power of inhibiting the growth of mouth bacteria .....I think **BOROLYPTOL** might be safely used for sterilizing instruments, as only a slight tarnish was formed on steel instruments immersed in it for thirty-six hours, but this is longer than is necessary to accomplish sterilization; half an hour's exposure produced no tarnish whatever."—(*Sterilization in Dental Practice—Dental Brief—Ma.*)

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